

# Risk factors for 30-day readmission in patients with ischemic stroke: a systematic review and meta-analysis

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**Background:** The aim of this study was to identify risk factors for 30-day readmission in ischemic stroke survivors, with an attempt to improve post-discharge care and lower the 30-day readmission rate.

**Methods:** Seven databases were searched from inception to April 30, 2021. Retrospective or prospective observational studies and interventional studies focusing on 30-day readmission risk factors in patients with ischemic stroke were included. Two authors independently screened the literature and evaluated the quality of the studies using the Newcastle-Ottawa scale (NOS). The pooled effect size was estimated using the odds ratio (OR), and the corresponding 95% confidence interval (CI) was calculated. The Cochrane Q ( $\chi^2$ ) and I<sup>2</sup> tests were used to assess heterogeneity among studies, and each risk factor was tested for its robustness using fixed- or random-effects models.

**Results:** A total of 17 retrospective observational studies from the United States (n=10), China (n=2), Republic of Korea (n=2), Norway (n=2), and Australia (n=1), comprising a total of 1,829,964 patients, were included. The 30-day readmission rates of ischemic stroke survivors ranged from 1.41% to 27.64%, with a mean value of 10.66%±6.87%. We finally identified 6 risk factors: history of stroke (OR, 1.33; 95% CI: 1.08–1.64; P=0.007), diabetes mellitus (OR, 1.15; 95% CI: 1.13–1.17; P<0.001), hypertension (OR, 1.10; 95% CI: 1.07–1.13; P<0.001), atrial fibrillation (OR, 1.26; 95% CI: 1.23–1.29; P<0.001), heart failure (OR, 1.59; 95% CI: 1.56–1.63; P<0.001), and age, among which age was determined by descriptive analysis. Four risk factors were ruled out: hyperlipidemia (OR, 1.01; 95% CI: 0.87–1.17; P=0.91), coronary artery disease (OR, 0.83; 95% CI: 0.73–0.96; P=0.009), smoking (OR, 0.97; 95% CI: 0.83–1.14; P=0.71), and gender (female, OR, 0.97; 95% CI: 0.96–0.98; P<0.001).

**Discussion:** The 30-day readmission rates of ischemic stroke survivors ranged from 1.41% to 27.64% and remained challenging. We found that stroke history, diabetes mellitus, hypertension, atrial fibrillation, heart failure, and advanced age were risk factors for 30-day readmission, whereas hyperlipidemia, coronary artery disease, smoking, and gender were not. All the studies included in this analysis were case-control studies, and thus causality cannot be inferred. Furthermore, recall bias may be present.

Keywords: Ischemic stroke; readmission; risk factors; meta-analysis

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# Introduction

According to a report on the global burden of stroke between 1990 and 2016 (1), stroke is the second leading cause of death worldwide, second only to ischemic heart disease, accounting for nearly 50 million deaths annually. Stroke is a major public health problem throughout the world due to its high prevalence, mortality, disability rate, and incidence of complications. Stroke has a long disease course, and the recovery period ranges from 2 weeks to 6 months after the onset of the disease, with the sequelae period even continuing beyond 6 months. These facts make out-of-hospital management of stroke particularly important. However, the 30-day readmission rates in stroke survivors remain high due to a variety of factors, including disease recurrence, infection, limb dysfunction, and falls. In 2018, a Chinese study involving 50,912 stroke survivors from 375 hospitals in 29 provinces in China showed that 28.8% of patients were readmitted within 30 days of discharge (2). In a 6-year population-based cohort study of approximately 2 million adult stroke survivors in the United States, 13.7% of patients with hemorrhagic stroke, 12.4% of patients with acute ischemic stroke, and 11.5% of patients with subarachnoid hemorrhage were readmitted within 30 days (3). The high readmission rate reduces the quality of life of patients, causes considerable harm to patients and their families, and increases the medical and economic burden. It is also important to investigate the 15- or 60-day readmission rates of patients with ischemic stroke, but the study of Bjerkreim et al. (4) showed that 30-day readmission significantly increased the risk of 1-year mortality in patients surviving 30 days after discharge. Furthermore, the frequency of 30-day readmissions after stroke has become an indicator for the quality of care, quality of immediate post-discharge care, and the presence of a chronically ill and vulnerable population (5). Frequent readmissions can also affect hospital development and patient reimbursement (6). Vahidy et al. reported that 12.9% of 30-day readmissions were preventable (7). Therefore, it is important to assess the risk factors for 30-day readmissions in ischemic stroke survivors and intervene accordingly.

Although many multicenter, retrospective, observational studies with large sample sizes have investigated the risk factors for 30-day readmission in patients with ischemic stroke in recent years, few prospective cohort studies, longitudinal studies, and randomized controlled trials (RCTs) have been published in this field. With diverse foci, these studies provide no definite conclusions and have not been properly summarized. No previous relevant metaanalyses (8-10) have specifically explored the stroke types and the timing of readmissions due to the limited number of the included articles and databases. Only a small number of risk factors have been identified, and many other risk factors warrant further investigation. Furthermore, these previous meta-analyses did not include several high-quality articles published in the past 5 years, and their conclusions need to be updated. The aim of this meta-analysis was therefore to identify the risk factors for 30-day readmission in ischemic stroke survivors, with an attempt to inform the out-of-hospital management of stroke and lower the 30-day readmission rate, thus benefiting more patients.

Whilst some researchers reported similar studies (9) in 2016, the highlight of our study is that we searched 3 Chinese databases, namely Wanfang data, China National Knowledge Infrastructure (CNKI), and Chinese Science and Technology Journal Database (VIP), and included excellent research in Chinese, rather than just research published in English, which previous similar institutes have not. We believe that research by Chinese scholars is essential to advance clinical work and scientific research. We have added 12 of the latest studies since 2016, and many of the studies are multicenter studies with large sample sizes, making the results more reliable. In addition, only 4 studies were included in previous studies to compare the differences between the experimental group and the control group, while 17 studies were included in our study, which is conducive to improving the persuasiveness of the results. Our study considered nearly 30 risk factors for 30-day readmission after ischemic stroke, and finally identified 6 risk factors after 4 risk factors were ruled out, with 5 possible risk factors requiring further investigations. We present the following article in accordance with the PRISMA reporting checklist (available at https://dx.doi. org/10.21037/apm-21-2884).

# Methods

# Literature search

Four English-language databases, including Web of Science (WOS), the National Library of Medicine (MEDLINE), Excerpta Medica Database (EMBASE), and the Cochrane Library, along with the 3 top Chinese-language databases, including Wanfang data, China National Knowledge Infrastructure (CNKI), and Chinese Science and Technology Journal Database (VIP), were searched from inception to April 30, 2021. Gray literature as well as the references of the relevant articles were also retrieved when possible. The search was conducted by using a combination of relevant subject headings and keywords including "stroke/ acute ischemic stroke/cerebral infarction/transient ischemic attack (TIA)/cerebral vascular accident" and "re\*hospital\*/ re\*admission\*".

#### Inclusion and exclusion criteria

The inclusion criteria were as follows: (I) the article was a retrospective or prospective observational study or interventional study; (II) the subjects were patients with radiologically (cranial computed tomography or magnetic resonance imaging) confirmed ischemic stroke or identified according to the International Classification of Diseases, regardless of stroke type, lesion location, disease course, or comorbidity; (III) participants were aged  $\geq 18$  years; and (IV) the study focused on risk factors for 30-day readmission in patients with ischemic stroke. The exclusion criteria were as follows: (I) studies that were not available in full text; (II) literature for which complete data were not available; (III) among repeated articles, the article had the least comprehensive data set; and (IV) review articles, case reports, and qualitative studies. Some of the articles on 30-day unplanned readmissions or that focused on 28- or 31-day readmissions were also included, as we believed they were equally valuable for our analysis. We also included some articles that examined patients with different stroke types and articles in which patients with ischemic stroke accounted for more than 70% of all the participants. However, similar articles not involving ischemic stroke survivors or with a low proportion of ischemic stroke survivors were excluded. A few articles that did not appear suitable for our analysis were still included if we could find or calculate the data we needed from these articles, though information from these articles was typically quite limited.

#### Data extraction and quality assessment

Two researchers (DZQ and WXY) independently screened the literature based on the inclusion and exclusion criteria. Using a predesigned table, these 2 researchers independently extracted data including: (I) first author, publication year, country, study type, and sample size; (II) basic characteristics of the study population including age, stroke type, readmission time, readmission type, and 30-day readmission rate; and (III) outcome indicators including risk factors for 30-day readmissions. These 2 investigators also independently assessed study quality using methods developed by the US Agency for Healthcare Research and Quality (AHRQ), while the Newcastle-Ottawa Scale was applied for observational studies. Study quality scores were defined as poor [0–3], fair [4–6], or good [7–9]. Discrepancies encountered during literature screening, data extraction, and quality assessment were discussed and resolved in consultation with a third author (YR), if necessary. Where data were not available or were unclear from the reports, we contacted the corresponding authors for further information.

# Data synthesis and statistical analysis

Review Manager version 5.3 (Cochrane Library) was used for outcome analysis. As all the included articles in the final analysis were retrospective observational studies, the pooled effect size was estimated using odds ratio (OR), and the 95% confidence interval (CI) was also calculated. A P value of <0.05 was considered statistically significant. Heterogeneity was assessed by the  $\chi^2$  test and I<sup>2</sup> value. If the heterogeneity of the study was acceptable (P>0.10 and  $I^2 < 50\%$ ), a fixed-effects model was applied, while the robustness of the test was validated using a random-effects model. If heterogeneity was present among the studies, the sources of heterogeneity were further analyzed. First, any possible errors that occurred during data extraction, recording, and input were checked for. Second, sensitivity analysis was performed to exclude studies that might have caused heterogeneity, which was followed by a reperforming of the meta-analysis to eliminate heterogeneity. If the heterogeneity was large (P $\leq$ 0.10 and I<sup>2</sup>>50% for outcome indicators) and the source of heterogeneity could not be determined, the meta-analysis could not be performed and only descriptive analysis was conducted. For missing or erroneous data in the original articles, we added them ourselves if they could be interpreted according to the main text. Otherwise, the corresponding authors of these articles were contacted for clarification via email. The search flowchart, basic information table, and quality evaluation table were created using Microsoft Word (Microsoft Corporation, Redmond, WA, USA), and the forest plots and inverted funnel plots were created using RevMan version 5.3. Publication bias was assessed using inverted funnel plots.

#### 11086

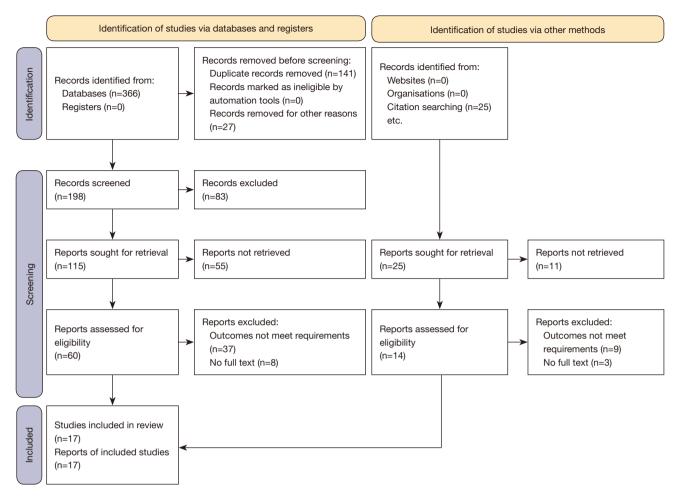


Figure 1 Flowchart of the review process.

# **Results**

# Results of literature search

A total of 366 articles were retrieved from the 7 databases, and 25 documents were found through other resources (*Figure 1*). Seventeen retrospective observational studies from the United States (n=10), China (n=2), Republic of Korea (n=2), Norway (n=2), and Australia (n=1), comprising a total of 1,829,964 patients, were entered into the final meta-analysis. In contrast, the number of prospective observational and interventional studies (e.g., RCTs) was small. In addition, these articles covered a wide range of topics that did not focus on a specific number of risk factors. The number of articles addressing the same risk factor was  $\leq 3$ , and many factors were only described in just a single article. Thus, they were not deemed suitable for metaanalysis or descriptive systematic evaluation. The 30-day readmission rates of ischemic stroke survivors ranged from 1.41% to 27.64%, with a mean value of 10.66% (SD 6.87%). The results varied among countries and regions, with the highest reported 30-day readmission rate from China and the lowest from the United States (*Table 1*).

# Quality evaluation

The included articles were of moderate quality (n=13) or high quality (n=4) (*Table 2*).

#### Statistical analysis

We screened about 30 of the most frequently mentioned risk factors in these 17 articles and finally identified 6 risk factors (*Figures 2-6*): history of stroke (OR, 1.33; 95% CI: 1.08–1.64; P=0.007), diabetes mellitus (OR, 1.15; 95%

 Table 1 Characteristics of the 17 selected studies

Ctudioo	Country	Ctualia tuna	Readmission	Readmission	Readmi	ission (N)	Effective factors OD (05% CI)	Invalid factors
Studies	Country	Stroke type	time	type	Yes	No	- Effective factors, OR (95% CI)	Invalid factors
Qiu <i>et al.</i> 2021	China	IS	30 d	All causes	504 (22.96%)	1,691 (77.04%)	Age, 1.04 (1.03–1.05); NIHSS on admission, 1.03 (1.00–1.05); prior stroke, 1.36 (1.07–1.74); diabetes, 1.42 (1.15–1.74); indwelling urinary catheter, 1.53 (1.13–2.07); on non-neurology floor, 1.45 (1.10–1.91)	*Discharge destination ( home), 1.30 (1.02–1.65). current smoking; curren family history of stroke; ≥50%; thrombolytic the discharge destination (h
Lekoubou <i>et al.</i> 2020	USA	IS (85%); HS (15%)	30 d	All causes	27,161 (11.76%)	203,708 (88.24%)	Seizure, 1.20 (1.14–1.25)	-
Lee <i>et al.</i> 2019	•	IS (75.6%); HS (24.4%)	30 d	All causes	4,124 (9.22%)	40,605 (90.78%)	Age: 18–44, 1; 45–65, 0.93 (0.81–1.07); 65-75, 1.03 (0.89–1.19); 75+, 1.03 (0.89–1.20); type of insurance: NHI, 1; medical aid, 1.16 (1.03–1.30); length of stay of the index admission: less than 7 days, 1; 7–14 days, 1.1 (1.01–1.19; More than 15 days, 1.34 (1.22–1.47); Hospital factors (stroke evaluation grade): first grade, 1; second grade, 1.13 (0.90–1.43); third grade, 1.66 (1.08–2.55); non-grading, 1.4 (1.00–1.95); hospital region: capital area, 1; metropolitan area, 1.21 (1.07–1.37); nonmetropolitan area, 1.26 (1.08–1.47)	
Wen <i>et al.</i> 2019	China	IS	31 d	Unplanned	960 (27.64%)	2,513 (72.36%)	Age: occupation (employees of enterprises and institutions, workers, farmers, unemployed, retirees, others); payment method of medical expenses (basic medical insurance for urban workers, basic medical insurance for urban residents, new rural cooperative medical care, public expense, self-financed, other social insurance, others); grade of hospital (grade 2, 3); High blood pressure: abnormal lipid metabolism; heart-related diseases; length of hospital stay; use of clinical pathways; application of surgery; discharge mode (medical discharge or transfer, nonmedical discharge)	Female; marital status (r (e.g. transfer)]; diabetes
Bjerkreim <i>et al.</i> 2018	Norway	IS (89.60%); TIA (10.40%)		Unplanned	200 (10.67%)	1,674 (89.33%)	Age (years), mean $\pm$ SD, 1.02 (1.01–1.03); NIHSS score at discharge, median (IQR); BI score at discharge, median (IQR); stroke subtype (large artery atherosclerosis), 1.74 (1.20–2.51); stroke subtype (small vessel occlusion); stroke subtype (undetermined etiology); peripheral arterial disease, 1.58 (1.01–2.47); Angina pectoris; hypertension; risk factor burden; complications during the stroke hospitalization (urinary tract infection; urinary retention; pneumonia; enteral feeding, 1.86 (1.11–3.11); seizures; any complication; discharge destination (home; nursing home; other department)	*mRS score at discharg (cardioembolism); stroke myocardial infarction; at thrombolysis); treatmen (incontinence; stroke in (Home nursing; Rehabili
Boehme <i>et al.</i> 2018	USA	IS	30 d	All causes	48,125 (12.95%)	323,462 (87.05%)	Urinary tract infection, 1.11 (1.06–1.17)	Sepsis; pneumonia
Crispo <i>et al.</i> 2018	USA	IS	30 d	All causes	6,205 (1.41%)		Age (< 40, 40–49, 50–59, 60–69, 70–79, 80–89, 90+), 1.12 (1.00–1.26); primary payer: private insurance; medicare, 1.33 (1.26–1.40); Medicaid, 1.41 (1.32–1.51); self-pay, 1.04 (0.93–1.16); no charge, 1.01 (0.72–1.41); median household income: $66,000+$ ; $51,000-665,999, 0.97$ (0.92–1.02); $40,000-550,999, 1.01$ (0.96–1.06); $1-339,999, 1.08$ (1.03–1.14); length of stay: 0–7 days; > 7 days, 1.38 (1.33–1.43); discharge disposition: routine; transfer: short-term hospital, 1.91 (1.70–2.14); transfer: other type of facility, 1.52 (1.45–1.59); home health care, 1.26 (1.20–1.32); against medical advice, 2.41 (2.08–2.79); discharged alive, destination unknown, 0.20 (0.11–0.38); comorbidities: 0–2; 3–4, 1.36 (1.30–1.43); 5–6, 1.78 (1.68–1.87); 7+, 2.20 (2.08–2.34); bed size of hospital: small; medium, 1.04 (0.98–1.11); large, 1.08 (1.02–1.15); control/ownership of hospital: government, non-federal (public); private, not-for-profit (voluntary), 1.04 (0.97–1.11); private, investor owned (proprietary), 1.20 (1.12–1.29); teaching status of hospital: Metropolitan teaching; Metropolitan nonteaching, 0.97 (0.93–1.01); Nonmetropolitan, 0.79 (0.73–0.85)	Sex
Khanevski <i>et al.</i> 2018	Norway	IS (89.01%); TIA (10.99%)		All causes	33 (1.76%)	1,841 (98.24%)	BI score, median (IQR); Index etiology (TOAST): large-artery atherosclerosis (LAA), 4.36 (2.01–9.47); Index etiology (TOAST): cardioembolism; Index etiology (TOAST): other determined, 9.72 (1.84–51.30); peripheral artery disease, 2.61 (1.03–6.60); treatment: carotid endarterectomy; length of index admission, median (IQR), 0.90 (0.82–0.99); discharged to other department	Age (years) mean ± SD; Index etiology (TOAST): diabetes; angina pector current smoking; treatm nursing; discharged to F
Allen <i>et al.</i> 2017	USA	IS	30 d	All causes	57 (13.70%)	359 (86.30%)	Coronary artery disease; diabetes	Not evaluated within 21 initial admission NIHSS; employment status; insu
						-		

Table 1 (continued)

on (rehabilitation), 0.81 (0.66–0.99). \*Discharge destination (Nursing 65). Females; males; BMI  $\geq$  24 kg/m<sup>2</sup>; length of stay; hypertension; rent drinking; hyperlipidemia; atrial fibrillation; coronary artery disease; ke; nasogastric tube feeding; reimbursement of medical insurance herapy; thrombectomy; thrombolytic therapy + thrombectomy; (home)

a emergency room; hospital type (general hospital, superior general

s (married, other); route of admission [emergency, outpatient, others es

rge, median (IQR), 0.99 (0.89–1.10); male sex; stroke subtype oke subtype (other determined etiology); prior stroke; diabetes; atrial fibrillation; prior/current smoking; treatment (intravenous ent (thrombectomy); complications during the stroke hospitalization in progression); length of stay, median (IQR); discharge destination pilitation department)

SD; sex (male); mRS score, median (IQR); NIHSS score, median (IQR); T): small vessel disease; Index etiology (TOAST): undetermined; toris; myocardial infarction; hypertension; atrial fibrillation; prior/ tment: IV thrombolysis; discharged to home; discharged to Home o Rehabilitation; discharged to Nursing home

21 days; smoking history; dyslipidemia; atrial fibrillation; hypertension; SS; Neurology consultation; gender; ethnicity; discharge disposition; nsurance type; IV tPA

11088

Table 1 (continued)

Studies	Country	Stroke type	Readmission	Readmission	Readmi	ssion (N)	- Effective factors, OR (95% CI)	Invalid factors
Studies	Country	Stroke type	time	type	Yes	No	- Ellective factors, On (95% CI)	
Mittal <i>et al.</i> 2017	USA	IS	30 d	unplanned	35 (6.90%)	472 (93.10%)	Married at presentation, 0.47 (0.18–1.14); Educational level (high school graduation or higher), 0.43 (0.16–1.02); married at presentation; living arrangement (assisted living), 2.25 (0.63–7.11); hypertension, 4.72 (0.79–92.3); dementia, 2.55 (0.76–8.52); discharge disposition after index stroke (Nursing home), 0.29 (0.08–0.84)	Age in years (mean ± SD) other); smoking (current s hemorrhage; coronary ar diabetes; intravenous thr after index stroke (home;
Nouh <i>et al.</i> 2017	USA	IS (67%); HS (22%); TIA (11%)	30 d	All causes	134 (8.63%)	1,418 (91.37%)	Age >75, 1.18 (0.77–1.81); residence in facility, 1.41 (0.75–2.68); prior stroke, 1.39 (0.91–2.12); diabetes mellitus, 1.26 (0.85–1.87); chronic heart failure, 1.63 (0.99–2.67); atrial fibrillation, 1.26 (0.80–1.99); admit to non-neurology service, 2.04 (1.28–3.27); on non-neurology floor, 1.10 (0.72–1.68)	Male gender; living witho depression; dementia; HS
Vahidy <i>et al.</i> 2017	USA	IS	30 d	All causes		-	Age: mean (SE), 1.01 (1.00–1.01); insurance: private, 0.70 (0.67–0.74); other, 0.62 (0.57–0.66); setting for patient county: "Fringe" Large metro, 0.92 (0.87–0.97); other (non-large Metro), 0.86 (0.82–0.90); median household income for patient ZIP code (quartile): \$38,000–47,999, 0.92 (0.87–0.96); \$48,000–63,999, 0.93 (0.89–0.98); $\geq$ \$64,000, 0.92 (0.87–0.97); Number of chronic conditions – mean (SE): 1.11 (1.10–1.11); Charlson Comorbidity Index: 1, 1.57 (1.46–1.68); 2, 3.63 (3.43–3.85); atrial fibrillation, 1.26 (1.21–1.31); hypertension, 1.09 (1.04–1.15); coagulopathy, 1.50 (1.35–1.64); congestive heart failure, 1.60 (1.53–1.68); valvular disorders, 1.19 (1.12–1.26); peripheral vascular disease, 1.37 (1.29–1.45); disorder of pulmonary circulation, 1.49 (1.36–1.63); chronic pulmonary disease, 1.34 (1.28–1.40); chronic blood loss, 2.18 (1.74–2.73); anemia, 1.66 (1.58–1.74); diabetes mellitus, 1.09 (1.05–1.13); diabetes with complications, 1.66 (1.56–1.76); liver disease, 1.63 (1.41–1.87); renal failure, 1.64 (1.58–1.72); fluid and electrolyte disorders, 1.45 (1.39–1.51); psychoses, 1.31 (1.20–1.43); depression, 1.15 (1.09–1.22); other neurological disorder, 1.84 (1.48–2.28); alcohol, 0.90 (0.82–0.99); all patient refined DRG severity of illness (loss of function): moderate, 1.48 (1.39–1.58); major, 2.35 (2.21–2.50); extreme: 3.24 (2.98–3.53); all patient refined DRG mortality (likelihood of dying): moderate, 1.56 (1.49–1.62); major, 2.35 (2.24–2.47); Extreme, 2.47 (2.30–2.66); IAT, 1.26 (1.03–1.55); length of stay: mean (SE), 1.03 (1.02–1.03); overall charges, 1.41 (1.38–1.45); disposition: other (SNF, Rehab etc.), 1.68 (1.61–1.75); home health, 1.40 (1.34–1.47)	Female; insurance: Media tPA and/or IAT; admitted
Han <i>et al.</i> 2015	Republic of Korea	ICH (19.71%); CI (80.29%)	30 d	All causes	1,782 (1.79%)	97,682 (98.21%)	Age: <64; 65+, 0.76 (0.65–0.89); type of health insurance: NHI; medical-aid, 1.14 (0.96–1.35); hospitalization year: 2010; 2011, 1.06 (0.85–1.32); 2012, 1.36 (1.10–1.68); 2013, 2.91 (2.37–3.58); length of stay, 1.01 (1.01–1.01); teaching status: teaching hospital; nonteaching hospital, 0.89 (0.68–1.16); hospital-level: percentage of specialists, 0.98 (0.90–1.06); percentage of rns, 0.89 (0.85–0.94); number of total doctors per bed, 1.00 (0.88–1.13); number of total nurses per bed, 0.98 (0.93–1.02); number of neurosurgeons, 0.86 (0.56–1.32); number of neurologists, 1.15 (0.70–1.90); number of beds, 0.98 (0.90–1.05); stroke patient admittance, 0.95 (0.92–0.98)	Gender; Charlson Comor
Kilkenny <i>et al.</i> 2013	Australia	IS (91.41%); HS (8.59%)	28 d	All causes	215 (6.46%)	3,113 (93.54%)	Dependent before admission (mRS, 2–5), 1.87 (1.25–2.81); ischemic heart disease, 1.36 (0.92–2.02); incontinent <72-h admission, 1.19 (0.77–1.83); health system: rural hospital; no CT scan or MRI (<24 h), 1.78 (1.00–3.14); health outcomes: dependent at discharge (mrs, 3–5); any severe complication, 2.81 (1.55–5.12)	Median age; sex female; diabetes mellitus; previou score: 0, 3, 6); weak arm score: 1, 2, 4, or 5); socia alone (before admission); median onset time to arri implementation; neurolog swallowing (<24 h); assessed by occ (<24 h); any care in a stro meeting within 7 d; clinic management care plan o discharged home; palliati
Lichtman <i>et al.</i> 2013	USA	IS	30 d	All causes	44,379 (14.41%)		Age, y; mean $\pm$ SD, 1.02 (1.01–1.02); race; females, 1.14 (1.08–1.21); congestive heart failure, 2.29 (2.15–2.43); myocardial infarction, 1.54 (1.29–1.85); peripheral vascular disease, 1.14 (1.05–1.24); unstable angina, 1.49 (1.11–1.98); atherosclerosis, 1.15 (1.08–1.21); diabetes mellitus, 1.43 (1.35–1.51); cerebrovascular disease, 0.84 (0.79–0.90); protein-calorie malnutrition, 1.43 (1.23–1.67); renal failure, 2.31 (2.14–2.48); pneumonia, 1.28 (1.59–1.42); dementia, 1.10 (1.02–1.20); anemia, 1.43 (1.35–1.51); discharge disposition: home; home care; skilled nursing/intermediate care facility; rehabilitation; other	-

Table 1 (continued)

# Deng et al. Meta-analysis of risk factors for readmission of stroke

SD); sex; living arrangement (apartment/house; nursing home; ent smokers; past smokers; never smoked); previous IS; intracranial / artery disease; atrial fibrillation; heart failure; hyperlipidemia; thrombolysis; median length of stay (days); discharge disposition me; rehabilitation)

thout spouse; obese (BMI >30); high cholesterol; hypertension; HS

edicaid; ulcer; Alzheimer's disease; drug abuse; obesity; IV tPA; IV ed on a weekend

morbidity Index (0; 1; 2; 3+); hospital ownership (public; private)

Ale; Australian; atrial fibrillation; hypercholesterolemia; hypertension; vious stroke or TIA; stroke sub-type; impaired speech (SSS speech arm (SSS score: 0, 2, 4, or 5); unable to walk on admission (SSS gait bocial circumstances: married or with partner before admission; lived on); discharge delay because family unprepared; health system: arrival; median arrival to admission; stroke unit establishment/ blogist, principal treating doctor; discharge delay; documentation of essessed by physiotherapist (<48 h); assessed by speech pathologist boccupational therapist (<48 h); frequent neurological observations stroke unit during admission; admitted to intensive care unit; family nical pathway or management plan; aspirin given (<24 h), if IS; selfn on discharge; appropriate discharge strategy; health outcomes: liative care; median length of stay in days (Q1–Q3)

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Table 1	(continued)
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Studies	Country	Stroke type	Readmission	Readmission	Readmi	ission (N)	- Effective factors, OR (95% CI)	Invalid factors
Studies	Country	Stroke type	time	type	Yes	No	- Ellective factors, On (95% CI)	Invalid factors
Suri <i>et al.</i> 2013	USA	IS	30 d	All causes	90 (8.84%)	928 (91.16%)	Age; diabetes mellitus; discharge disposition (home with health services; rehabilitation facility; short-term facility)	Sex; Race (White; African past smoker; never smoke stroke; moderate stroke; s emergency department (< administered; Neurology o
Bhattacharya et al. 2011	a USA	IS (77.34%); TIA (22.66%)		All causes	22 (11.46%)	170 (88.54%)	Congestive heart failure; coronary artery disease; NIHSS ≥10; discharge destination (home/acute rehabilitation)	Mean age; male sex; race Medicaid; private insurers fibrillation; hyperlipidemia atherosclerosis; cardioem tPA; Intervention; Aspirin;

The number of traditional cardiovascular risk factors was defined as the risk factor burden (0, 1, 2, or ≥3). These included hypertension, diabetes mellitus, smoking, angina pectoris, peripheral arterial disease, and prior myocardial infarction; NHI, National Health Insurance; RNs, registered nurses; TOAST, Trial of ORG 10 172 in Acute Stroke Treatment. Some of the missing data were not found in the original article. Attention should be paid to the interpretation of the OR value of each study as the grouping of each study is different, and the meaning of OR greater than 1 is different. Moreover, the meaningful indicators listed here are those with a P value less than 0.05, and each article includes those with an OR greater than 1 and those with an OR less than 1. The data of effective and invalid indicators were obtained from single factor analysis. For multivariate analysis of data, ineffective factors still uses the single factor analysis, but meaningful in the single factor, and it meaningless does mark\* in multivariate analysis, and the factors behind the enclosed corresponding multivariate analysis, but there was no statistically significant factor in multivariate analysis. IS, ischemic stroke; HS, hemorrhagic stroke; TIA, transient ischemic attack; ICH, intracerebral hemorrhage; CI, cerebral infarction; –, no information; –, standard deviation.

an American; other); insurance; smoking status (current smoker; oked); hypertension; hyperlipidemia; wake forest scale (mild e; severe stroke; unknown); hours from symptom onset to arrival in t (<1 h; 1-2 h; 2-3 h; >3 h); previous history of stroke; thrombolytics gy consulted

ace (African American; White; Hispanic; others); insurance (Medicare/ ers; uninsured); current smokers; cocaine; hypertension; atrial nia; previous stroke; diabetes; TOAST mechanisms (large artery embolic; small vessel disease; other unknown); treatments offered (iv in; Statin)

studies
selected
assessment of
Quality
Table 2

		Selection			Comparability		Exposure		
Study	Is the case definition adequate	Representativeness of the cases	Selection of controls	Selection of Definition of controls controls	Comparability of cases and controls on the basis of the design or analysis	Same method of Ascertainment of ascertainment exposure for cases and controls	Same method of ascertainment for cases and controls	Non- response rate	Quality score
Qiu <i>et al.</i> 2021	b	IJ	q	Ø	ŋ	ъ	ъ	q	9
Lekoubou <i>et al.</i> 2020	q	в	q	Ø	а	ъ	ъ	q	5
Lee <i>et al.</i> 2019	q	ъ	q	Ø	ab	ъ	ъ	q	9
Wen <i>et al.</i> 2019	q	ъ	q	Ø	а	ъ	ъ	q	5
Bjerkreim <i>et al.</i> 2018	Ø	в	q	Ø	ab	ъ	ъ	q	7
Boehme <i>et al.</i> 2018	Ø	ъ	q	Ø	ab	ъ	ъ	q	7
Crispo <i>et al.</i> 2018	q	в	q	Ø	ab	ъ	ъ	q	9
Khanevski <i>et al.</i> 2018	Ø	в	q	Ø	Ø	ъ	ъ	q	9
Allen <i>et al.</i> 2017	q	q	q	Ø	а	ъ	ъ	q	4
Mittal <i>et al.</i> 2017	q	в	q	Ø	а	ъ	ъ	q	5
Nouh <i>et al.</i> 2017	q	в	q	Ø	Ø	ъ	ъ	q	5
Vahidy et al. 2017	Ø	в	q	Ø	ab	ъ	ъ	q	7
Han <i>et al.</i> 2015	q	в	q	Ø	Ø	ъ	ъ	q	5
Kilkenny <i>et al.</i> 2013	Ø	в	q	Ø	Ø	ъ	ъ	q	9
Lichtman e <i>t al.</i> 2013	Ø	в	q	Ø	ab	ъ	ъ	q	7
Suri <i>et al.</i> 2013	q	в	q	g	ß	ъ	ъ	q	5
Bhattacharya <i>et al.</i> 2011	а	q	q	в	а	а	а	q	5
a, b means the answer to the question is choice a	he question is	t choice a or b.							

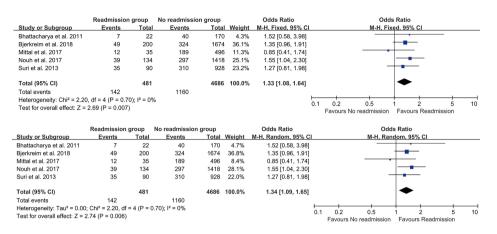


Figure 2 Influence of prior stroke on 30-day readmission in patients with ischemic stroke (Fixed effects model, Random effects model).

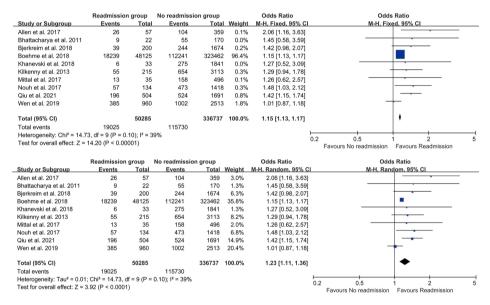


Figure 3 Influence of diabetes mellitus on 30-day readmission in patients with ischemic stroke (Fixed effects model, Random effects model).

CI: 1.13–1.17; P<0.001), hypertension (OR, 1.10; 95% CI: 1.07–1.13; P<0.001), atrial fibrillation (OR, 1.26; 95% CI: 1.23–1.29; P<0.001), heart failure (OR, 1.59; 95% CI: 1.56–1.63; P<0.001), and age, among which age was determined by descriptive analysis. Four risk factors were ruled out: hyperlipidemia (OR, 1.01; 95% CI: 0.87–1.17; P=0.91), coronary artery disease (OR, 0.83; 95% CI: 0.73–0.96; P=0.009), smoking (OR, 0.97; 95% CI: 0.83–1.14; P=0.71), and gender (female, OR, 0.97; 95% CI: 0.96–0.98; P<0.001; *Figures 7-10*). Five possible risk factors requiring further investigation included duration of hospitalization, treatment modality (thrombolysis and thrombectomy), discharge disposition (home, rehabilitation facility, nursing

home, home nursing, and others), health care payment model (Medicare, NHS, Medicaid, private insurance, and others), and etiology (atherosclerosis, cardiogenic cerebral embolism, small vessel disease, other definite causes, and other unknown causes). Intravenous thrombolysis (OR, 0.93; 95% CI: 0.91–0.96; P<0.001) and post-discharge rehabilitation (OR, 0.78; 95% CI: 0.65–0.93; P=0.007) were protective factors for 30-day readmissions in ischemic stroke survivors (*Figures 11-14*). Due to insufficient data reported in the studies, 17 factors could not be assessed, including epilepsy, peripheral arterial disease, deep vein thrombosis, dementia, infection, obesity, hospital region, ethnicity, renal failure, depression, admission to a non-neurological

#### Deng et al. Meta-analysis of risk factors for readmission of stroke

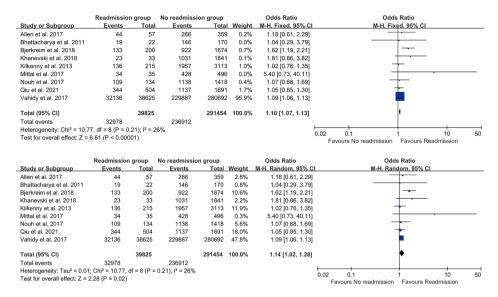


Figure 4 Influence of hypertension on 30-day readmission in patients with ischemic stroke (Fixed effects model, Random effects model).

	Readmissio	n group	No readmiss			Odds Ratio	Odds Ratio
Study or Subgroup	Events	Total	Events	Tota	Weight	M-H, Fixed, 95% CI	M-H, Fixed, 95% Cl
Allen et al. 2017	17	57	71	359	0.1%	1.72 [0.92, 3.22]	
Bhattacharya et al. 2011	1	22	24	170	0.0%	0.29 [0.04, 2.25]	
Bjerkreim et al. 2018	70	200	475	1674	0.6%	1.36 [1.00, 1.85]	
Khanevski et al. 2018	8	33	318	1841	0.1%	1.53 [0.69, 3.43]	
Kilkenny et al. 2013	52	215	654	3113	0.6%	1.20 [0.87, 1.66]	+ <del>-</del>
Mittal et al. 2017	11	35	159	496	0.1%	0.97 [0.46, 2.03]	
Nouh et al. 2017	38	134	282	1418	0.3%	1.59 [1.07, 2.37]	
Qiu et al. 2021	89	504	244	1691	0.8%	1.27 [0.97, 1.66]	<u></u>
Vahidy et al. 2017	10352	38625	63156	280692	97.4%	1.26 [1.23, 1.29]	
Total (95% CI)		39825		291454	100.0%	1.26 [1.23, 1.29]	•
Total events	10638		65383				
Heterogeneity: Chi <sup>2</sup> = 5.29	9, df = 8 (P = 0.7	73); l <sup>2</sup> = 0%					
Test for overall effect: Z =	19.13 (P < 0.00	001)					0.02 0.1 1 10 5
							Favours No readmission Favours Readmission
	Readmission		No readmission			Odds Ratio	Odds Ratio
Study or Subgroup	Readmission Events	group Total	No readmissio Events		Weight	Odds Ratio M-H, Random, 95% C	
					Weight 0.1%		
Allen et al. 2017	Events	Total	Events	Total		M-H, Random, 95% C	
Allen et al. 2017 Bhattacharya et al. 2011	Events 17	Total 57	Events 71	<u>Total</u> 359	0.1%	M-H. Random, 95% C 1.72 [0.92, 3.22]	
Allen et al. 2017 Bhattacharya et al. 2011 Bjerkreim et al. 2018	Events 17 1	<u>Total</u> 57 22	Events 71 24	<u>Total</u> 359 170	0.1% 0.0%	M-H. Random, 95% C 1.72 [0.92, 3.22] 0.29 [0.04, 2.25]	
Allen et al. 2017 Bhattacharya et al. 2011 Bjerkreim et al. 2018 Khanevski et al. 2018	Events 17 1 70	Total 57 22 200	Events 71 24 475	<u>Total</u> 359 170 1674	0.1% 0.0% 0.6%	M-H, Random, 95% C 1.72 [0.92, 3.22] 0.29 [0.04, 2.25] 1.36 [1.00, 1.85]	
Allen et al. 2017 Bhattacharya et al. 2011 Bjerkreim et al. 2018 Khanevski et al. 2018 Kilkenny et al. 2013	Events 17 1 70 8	Total 57 22 200 33	Events 71 24 475 318	<u>Total</u> 359 170 1674 1841	0.1% 0.0% 0.6% 0.1%	M-H, Random, 95% C 1.72 [0.92, 3.22] 0.29 [0.04, 2.25] 1.36 [1.00, 1.85] 1.53 [0.69, 3.43]	
Allen et al. 2017 Bhattacharya et al. 2011 Bjerkreim et al. 2018 Khanevski et al. 2018 Kilkenny et al. 2013 Mittal et al. 2017	Events 17 1 70 8 52	Total 57 22 200 33 215	Events 71 24 475 318 654	Total 359 170 1674 1841 3113	0.1% 0.0% 0.6% 0.1% 0.5%	M-H. Random, 95% C 1.72 [0.92, 3.22] 0.29 [0.04, 2.25] 1.36 [1.00, 1.85] 1.53 [0.69, 3.43] 1.20 [0.87, 1.66]	
Allen et al. 2017 Bhattacharya et al. 2011 Bjerkreim et al. 2018 Khanevski et al. 2018 Kilkenny et al. 2013 Mittal et al. 2017 Nouh et al. 2017	Events 17 1 70 8 52 11	Total 57 22 200 33 215 35	Events 71 24 475 318 654 159	Total 359 170 1674 1841 3113 496	0.1% 0.0% 0.6% 0.1% 0.5% 0.1%	M-H. Random, 95% C 1.72 [0.92, 3.22] 0.29 [0.04, 2.25] 1.36 [1.00, 1.85] 1.53 [0.69, 3.43] 1.20 [0.87, 1.66] 0.97 [0.46, 2.03]	
Allen et al. 2017 Bhattacharya et al. 2011 Bjerkreim et al. 2018 Kilkenny et al. 2018 Kilkenny et al. 2013 Mittal et al. 2017 Nouh et al. 2017 Qiu et al. 2021	Events 17 1 70 8 52 11 38	Total 57 22 200 33 215 35 134	Events 71 24 475 318 654 159 282	Total 359 170 1674 1841 3113 496 1418	0.1% 0.0% 0.6% 0.1% 0.5% 0.1% 0.4%	M-H. Random, 95% C 1.72 [0.92, 3.22] 0.29 [0.04, 2.25] 1.36 [1.00, 1.85] 1.53 [0.69, 3.43] 1.20 [0.87, 1.66] 0.97 [0.46, 2.03] 1.59 [1.07, 2.37]	
Allen et al. 2017 Bhattacharya et al. 2011 Bjerkreim et al. 2018 Kilkenny et al. 2018 Kilkenny et al. 2013 Mittal et al. 2017 Nouh et al. 2017 Qiu et al. 2021 Vahidy et al. 2017	Events 17 1 70 8 52 11 38 89	Total           57           22           200           33           215           35           134           504	Events 71 24 475 318 654 159 282 282 244	Total           359           170           1674           1841           3113           496           1418           1691	0.1% 0.0% 0.6% 0.1% 0.5% 0.1% 0.4% 0.8% 97.3%	M-H. Random, 95% C 1.72 (0.92, 3.22) 0.29 (0.04, 2.25) 1.36 (1.00, 1.85) 1.53 (0.66, 3.43) 1.20 (0.87, 1.66) 0.97 (0.46, 2.03) 1.59 (1.07, 2.37) 1.27 (0.97, 1.66)	
Allen et al. 2017 Bhattacharya et al. 2011 Bjerkreim et al. 2018 Khanevski et al. 2018 Kilkenny et al. 2013 Mittal et al. 2017 Nouh et al. 2017 Qiu et al. 2021 Vahidy et al. 2017 Total (95% CI)	Events 17 1 70 8 52 11 38 89	Total           57           22           200           33           215           35           134           504           38625	Events 71 24 475 318 654 159 282 282 244	Total           359           170           1674           1841           3113           496           1418           1691           280692	0.1% 0.0% 0.6% 0.1% 0.5% 0.1% 0.4% 0.8% 97.3%	M-H. Random, 95% C 1.72 (0.92, 3.22) 0.29 (0.04, 2.25) 1.36 (1.00, 1.85) 1.53 (0.69, 3.43) 1.20 (0.87, 1.66) 0.97 (0.46, 2.03) 1.59 (1.07, 2.37] 1.27 (0.97, 1.66) 1.26 (1.23, 1.29)	
Allen et al. 2017 Bhattacharya et al. 2011 Bjerkreim et al. 2018 Khanevski et al. 2018 Kilkenny et al. 2013 Mittal et al. 2017 Nouh et al. 2017 Qiu et al. 2021 Vahidy et al. 2017 Total (95% CI) Total events	Events 17 1 70 8 52 11 38 89 10352 10638	Total           57           22           200           33           215           35           134           504           38625           39825	Events 71 24 475 318 654 159 282 244 63156 65383	Total           359           170           1674           1841           3113           496           1418           1691           280692	0.1% 0.0% 0.6% 0.1% 0.5% 0.1% 0.4% 0.8% 97.3%	M-H. Random, 95% C 1.72 (0.92, 3.22) 0.29 (0.04, 2.25) 1.36 (1.00, 1.85) 1.53 (0.69, 3.43) 1.20 (0.87, 1.66) 0.97 (0.46, 2.03) 1.59 (1.07, 2.37] 1.27 (0.97, 1.66) 1.26 (1.23, 1.29)	M.H. Random. 35% Cl
Study or Subgroup           Allen et al. 2017           Bhattacharya et al. 2011           Bipdracimet al. 2018           Khanevski et al. 2018           Kihanevski et al. 2018           Mittal et al. 2017           Nouh et al. 2021           Vahidy et al. 2017           Total (95% CI)           Total (95% CI)           Total events	Events 17 1 70 8 52 11 38 89 10352 10638	Total           57           22           200           33           215           35           134           504           38625           39825	Events 71 24 475 318 654 159 282 244 63156 65383	Total           359           170           1674           1841           3113           496           1418           1691           280692	0.1% 0.0% 0.6% 0.1% 0.5% 0.1% 0.4% 0.8% 97.3%	M-H. Random, 95% C 1.72 (0.92, 3.22) 0.29 (0.04, 2.25) 1.36 (1.00, 1.85) 1.53 (0.69, 3.43) 1.20 (0.87, 1.66) 0.97 (0.46, 2.03) 1.59 (1.07, 2.37] 1.27 (0.97, 1.66) 1.26 (1.23, 1.29)	

Figure 5 Influence of atrial fibrillation on 30-day readmission in patients with ischemic stroke (Fixed effects model, Random effects model).

department, admission to an emergency department, admission on weekends, alcohol consumption, marriage, admission to a teaching hospital, and hospital ownership. Sensitivity analysis was performed for all analysis results, and there was no significant heterogeneity. Heterogeneity might have arisen from differences in geography, sample size, and study population across studies.

#### **Publication bias**

Inverted funnel plots for assessing publication bias are shown in *Figures 15-27*. Except for diabetes mellitus (*Figure 16*), hyperlipidemia (*Figure 17*), and intravenous thrombolysis (*Figure 24*), which might have involved some publication bias, none of the other factors showed

	Readmissio	n group	No readmissi	on group		Odds Ratio	Odds Ratio		
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% CI	M-H, Fixed, 95% C		
Bhattacharya et al. 2011	5	22	15	170	0.0%	3.04 [0.98, 9.40]			
Boehme et al. 2018	3898	48125	17143	323462	36.7%	1.57 [1.52, 1.63]			
Mittal et al. 2017	10	35	123	496	0.1%	1.21 [0.57, 2.60]		-	
Nouh et al. 2017	29	134	156	1418	0.2%	2.23 [1.43, 3.48]	2.9		
Vahidy et al. 2017	7300	38625	35648	280692	63.0%	1.60 [1.56, 1.65]			
Total (95% CI)		86941		606238	100.0%	1.59 [1.56, 1.63]	+		
Total events	11242		53085						
Heterogeneity: Chi <sup>2</sup> = 4.52	2, df = 4 (P = 0.3	84); l <sup>2</sup> = 12 <sup>4</sup>	%				0.05 0.2 1		20
Test for overall effect: Z =	41.49 (P < 0.00	001)						5	20
							Favours No readmission Favours	Readmission	
	,	,						Readmission	
	Readmissior	group	No readmissio			Odds Ratio	Odds Ratio		
	Readmission Events	i group Total	Events	Total		M-H, Random, 95% C	Odds Ratio I M-H, Random, 95%		
Bhattacharya et al. 2011	Readmission Events 5	group Total 22	Events 15	<u>Total</u> 170	0.1%	M-H. Random, 95% C 3.04 [0.98, 9.40]	Odds Ratio I M-H. Random, 95%		
<u>Study or Subgroup</u> Bhattacharya et al. 2011 Boehme et al. 2018	Readmission Events 5 3898	1 group Total 22 48125	Events 15 17143	<u>Total</u> 170 323462	0.1% 41.3%	M-H, Random, 95% C 3.04 [0.98, 9.40] 1.57 [1.52, 1.63]	Odds Ratio I M-H, Random, 95%		
Bhattacharya et al. 2011 Boehme et al. 2018 Mittal et al. 2017	Readmission Events 5 3898 10	1 group Total 22 48125 35	Events 15 17143 123	Total 170 323462 496	0.1% 41.3% 0.1%	M-H. Random, 95% C 3.04 [0.98, 9.40] 1.57 [1.52, 1.63] 1.21 [0.57, 2.60]	Odds Ratio M-H. Random, 95%		
Bhattacharya et al. 2011 Boehme et al. 2018 Mittal et al. 2017 Nouh et al. 2017	Readmission Events 5 3898 10 29	1 group Total 22 48125 35 134	Events 15 17143 123 156	Total 170 323462 496 1418	0.1% 41.3% 0.1% 0.4%	M-H. Random, 95% C 3.04 [0.98, 9.40] 1.57 [1.52, 1.63] 1.21 [0.57, 2.60] 2.23 [1.43, 3.48]	Odds Ratio		
Bhattacharya et al. 2011 Boehme et al. 2018 Mittal et al. 2017 Nouh et al. 2017	Readmission Events 5 3898 10	1 group Total 22 48125 35	Events 15 17143 123	Total 170 323462 496	0.1% 41.3% 0.1%	M-H. Random, 95% C 3.04 [0.98, 9.40] 1.57 [1.52, 1.63] 1.21 [0.57, 2.60]	Odds Ratio		
Bhattacharya et al. 2011 Boehme et al. 2018 Mittal et al. 2017 Nouh et al. 2017 Vahidy et al. 2017	Readmission Events 5 3898 10 29	1 group Total 22 48125 35 134	Events 15 17143 123 156	Total 170 323462 496 1418 280692	0.1% 41.3% 0.1% 0.4%	M-H. Random, 95% C 3.04 [0.98, 9.40] 1.57 [1.52, 1.63] 1.21 [0.57, 2.60] 2.23 [1.43, 3.48]	Odds Ratio M-H. Random. 95%		
Bhattacharya et al. 2011 Boehme et al. 2018 Mittal et al. 2017	Readmission Events 5 3898 10 29	1 group <u>Total</u> 22 48125 35 134 38625	Events 15 17143 123 156	Total 170 323462 496 1418 280692	0.1% 41.3% 0.1% 0.4% 58.2%	M-H. Random, 95% C 3.04 [0.98, 9.40] 1.57 [1.52, 1.63] 1.21 [0.57, 2.60] 2.23 [1.43, 3.48] 1.60 [1.56, 1.65]	Odds Ratio M-H. Random. 95%		
Bhattacharya et al. 2011 Boehme et al. 2018 Mittal et al. 2017 Nouh et al. 2017 Vahidy et al. 2017 Total (95% CI)	Readmission <u>Events</u> 5 3898 10 29 7300 11242	r group Total 22 48125 35 134 38625 86941	Events 15 17143 123 156 35648 53085	Total 170 323462 496 1418 280692	0.1% 41.3% 0.1% 0.4% 58.2%	M-H. Random, 95% C 3.04 [0.98, 9.40] 1.57 [1.52, 1.63] 1.21 [0.57, 2.60] 2.23 [1.43, 3.48] 1.60 [1.56, 1.65]	Odds Ratio		
Bhattacharya et al. 2011 Boehme et al. 2018 Mittal et al. 2017 Nouh et al. 2017 Vahidy et al. 2017 <b>Total (95% CI)</b> Total events	Readmission <u>Events</u> 5 3898 10 29 7300 11242 0; Chi <sup>2</sup> = 4.52, d	Total 22 48125 35 134 38625 86941 f = 4 (P = 0	Events 15 17143 123 156 35648 53085	Total 170 323462 496 1418 280692	0.1% 41.3% 0.1% 0.4% 58.2%	M-H. Random, 95% C 3.04 [0.98, 9.40] 1.57 [1.52, 1.63] 1.21 [0.57, 2.60] 2.23 [1.43, 3.48] 1.60 [1.56, 1.65]	Odds Ratio M-H. Random, 95% 0.05 0.2 1		20

Figure 6 Influence of heart failure on 30-day readmission in patients with ischemic stroke (Fixed effects model, Random effects model).

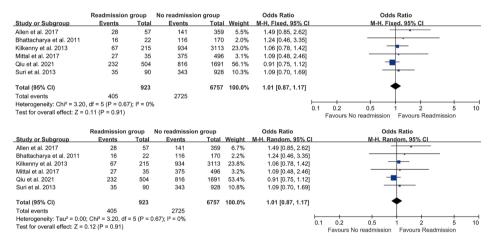


Figure 7 Influence of hyperlipidemia on 30-day readmission in patients with ischemic stroke (Fixed effects model, Random effects model).

	Readmissior	n group	No readmissio	on group		Odds Ratio	Odds Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% CI	M-H, Fixed, 95% Cl
Khanevski et al. 2018	7	33	521	1841	3.1%	0.68 [0.29, 1.58]	
Mittal et al. 2017	23	35	347	496	3.4%	0.82 [0.40, 1.70]	
Qiu et al. 2021	87	504	343	1691	28.0%	0.82 [0.63, 1.06]	
Suri et al. 2013	2	90	7	928	0.3%	2.99 [0.61, 14.61]	
Wen et al. 2019	249	960	740	2513	65.2%	0.84 [0.71, 0.99]	
Total (95% CI)		1622		7469	100.0%	0.83 [0.73, 0.96]	•
Total events	368		1958				
Heterogeneity: Chi <sup>2</sup> = 2.	.73, df = 4 (P =	0.60); I <sup>2</sup> =	0%				
Test for overall effect: Z	= 2.62 (P = 0.0	(90					0.05 0.2 1 5 24 Favours No readmission Favours Readmission
	Readmission	aroup	No readmission	aroup		Odds Ratio	Odds Ratio
Study or Subgroup	Events	Total	Events		Weight	M-H, Random, 95% C	M-H, Random, 95% Cl
Khanevski et al. 2018	7	33	521	1841	2.6%	0.68 [0.29, 1.58]	
Mittal et al. 2017	23	35	347	496	3.5%	0.82 [0.40, 1.70]	
Qiu et al. 2021	87	504	343	1691	27.5%	0.82 [0.63, 1.06]	
Suri et al. 2013	2	90	7	928	0.7%	2.99 [0.61, 14.61]	
Wen et al. 2019	249	960	740	2513	65.7%	0.84 [0.71, 0.99]	-
Total (95% CI)		1622		7469	100.0%	0.84 [0.73, 0.96]	◆
Total events	368		1958				
Heterogeneity: Tau <sup>2</sup> = 0.	00; Chi <sup>2</sup> = 2.73,	df = 4 (P =	= 0.60); l <sup>2</sup> = 0%				0.05 0.2 1 5 20
Test for overall effect: Z	= 2.57 (P = 0.01	)					Favours No readmission Favours Readmission
							Favous no reautilission Favous Reautilission

Figure 8 Influence of coronary heart disease on 30-day readmission in patients with ischemic stroke (Fixed effects model, Random effects model).

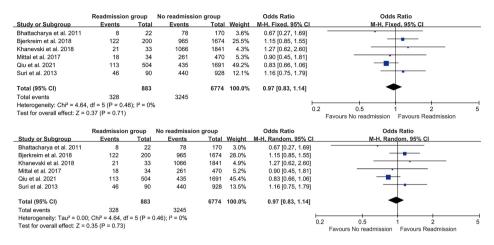


Figure 9 Influence of smoking on 30-day readmission in patients with ischemic stroke (Fixed effects model, Random effects model).

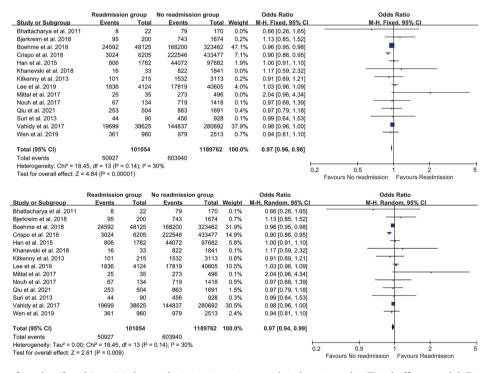


Figure 10 Influence of gender (female) on 30-day readmission in patients with ischemic stroke (Fixed effects model, Random effects model).

significant publication bias.

# Discussion

To our knowledge, this is the first systematic review and meta-analysis of risk factors for 30-day readmission in patients with ischemic stroke. Although several systematic reviews and meta-analyses (8-10) have investigated the risk factors for readmission in stroke survivors, our current study possesses the following distinct strengths: (I) all the literature (including Chinese-language literature, Englishlanguage literature, gray literature, and references to relevant articles) as of April 30, 2021 was searched, and thus high-quality articles in the past 5 years were included in the analysis; (II) a total of 7 electronic databases (including Chinese-language databases) were searched, which were

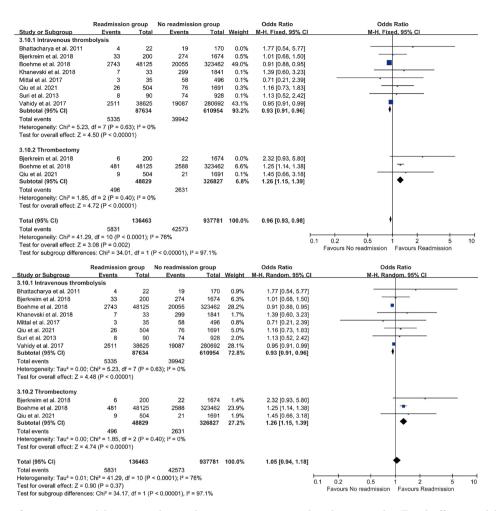


Figure 11 Influence of treatment modality on 30-day readmission in patients with ischemic stroke (Fixed effects model, Random effects model).

not examined in the previous meta-analyses; (III) only high-quality or moderate-quality studies were included for analysis, and some of these studies had large sample sizes, which increased the persuasiveness and scientific validity of our conclusions; and (IV) about 30 possible risk factors were considered, and detailed subgroup analyses were performed for some of the risk factors, with the results for some of these risk factors being reported for the first time.

Research on 30-day readmission in patients with ischemic stroke is a priority, and identifying the risk factors of readmissions is essential to implementing effective interventions and reducing the 30-day readmission rate. However, the exact risk factors remain controversial and have eluded exact study. The 30-day readmission rates of ischemic stroke survivors ranged from 1.41% to 27.64%, with a mean value of 10.66% (SD 6.87%). The results

varied across countries and regions, with the highest reported 30-day readmission rate from China (11) and the lowest from the United States (12), which is consistent with the results of previous systematic reviews and meta-analyses (2,4,7,13-27). Many risk factors can contribute to 30-day readmission in patients with ischemic stroke. We screened about 30 of the most frequently mentioned risk factors in these 17 articles and finally identified 6 risk factors: history of stroke, diabetes mellitus, hypertension, atrial fibrillation, heart failure, and age. Among these, age was determined by descriptive analysis. Four risk factors were excluded, including hyperlipidemia, coronary heart disease, smoking, and gender, while 5 possible risk factors require further investigation, including duration of hospitalization, treatment modality, discharge disposition, health care payment model, and etiology. Intravenous thrombolysis and

Study or Subgroup	Events	n group N Total	lo readmissi Events		Weight	Odds Ratio M-H. Fixed, 95% CI	Odds Ratio M-H. Fixed, 95% Cl
3.11.1 Home	2017			(1996)			
hattacharya et al. 2011	12	22	134	170	0.1%	0.32 [0.13, 0.81]	
jerkreim et al. 2018	77	200	928	1674	0.6%	0.50 [0.37, 0.68]	
/ahidy et al. 2017 Subtotal (95% CI)	13326	38625 38847	128838	280692 282536	97.5% 98.2%	0.62 [0.61, 0.63] 0.62 [0.61, 0.63]	<b>—</b>
otal events	13415	50047	129900	202330	30.2 /8	0.02 [0.01, 0.05]	<i>2</i>
leterogeneity: Chi2 = 3.82,	df = 2 (P = 0.1		129900				
est for overall effect: Z = 4		001)					
3.11.2 Rehabilitation depa Bjerkreim et al. 2018	rtment 10	200	141	1674	0.1%	0.57 [0.30, 1.11]	
Khanevski et al. 2018	0	33	152	1841	0.0%	0.17 [0.01, 2.71]	← · · · · · · · · · · · · · · · · · · ·
Mittal et al. 2017	10	35	112	472	0.1%	1.29 [0.60, 2.76]	
Diu et al. 2021	189	504	722	1691	1.0%	0.81 [0.66, 0.99]	
Suri et al. 2013	14	90	186	928	0.1%	0.73 [0.41, 1.33]	
ubtotal (95% CI)		862		6606	1.3%	0.78 [0.65, 0.93]	◆
otal events	223		1313				
leterogeneity: Chi <sup>2</sup> = 3.80, est for overall effect: Z = 2							
.11.3 Nursing home							
Bhattacharya et al. 2011	10	22	32	170	0.0%	3.59 [1.43, 9.05]	
Bjerkreim et al. 2018	69	200	376	1674	0.3%	1.82 [1.33, 2.49]	· · · · ·
ubtotal (95% CI)		222		1844	0.3%	1.94 [1.45, 2.61]	•
otal events	79		408				
leterogeneity: Chi <sup>2</sup> = 1.88, est for overall effect: Z = 4							
3.11.4 Home nursing							
Bjerkreim et al. 2018	28	200	166	1674	0.1%	1.48 [0.96, 2.27]	
Chanevski et al. 2018	2	33	193	1841	0.0%	0.55 [0.13, 2.32]	
ubtotal (95% CI)		233		3515	0.2%	1.32 [0.88, 1.98]	
otal events	30		359				
leterogeneity: Chi <sup>2</sup> = 1.69, est for overall effect: Z = 1		9); I <sup>z</sup> = 41%					
.11.5 Other							
Bjerkreim et al. 2018	16	200	47	1674	0.0%	3.01 [1.67, 5.42]	
Khanevski et al. 2018	4	33	59	1841	0.0%	4.17 [1.42, 12.23]	
Subtotal (95% CI)		233		3515	0.1%	3.20 [1.91, 5.38]	-
Total events	20		106				
leterogeneity: Chi <sup>2</sup> = 0.27, est for overall effect: Z = 4							
		40397		298016	100.0%	0.63 [0.61, 0.64]	,
					100.070	0.00 [0.01, 0.04]	
Fotal (95% CI) Fotal events	13767	40001	132086				
Total events Heterogeneity: Chi <sup>2</sup> = 127.8 Test for overall effect: Z = 4	0, df = 13 (P < 1.58 (P < 0.00	: 0.00001); l <sup>2</sup> 001)	= 90%	l² = 96.5%			0.05 0.2 1 5 Favours No readmission Favours Readmission
Fotal events Heterogeneity: Chi <sup>2</sup> = 127.8 Fest for overall effect: Z = 4 Fest for subaroup difference Study or Subgroup	0, df = 13 (P < 1.58 (P < 0.00	= 0.00001); l <sup>2</sup> 1001) 60. df = 4 (P	= 90%	on group	Weight	Odds Ratio M-H. Random, 95% C	Favours No readmission Favours Readmission Odds Ratio
Fotal events Heterogeneity: Chi <sup>2</sup> = 127.8 Foest for overall effect: Z = 4 Fest for subaroup difference Study or Subgroup 3.11.1 Home	0, df = 13 (P < 1.58 (P < 0.00 es: Chi <sup>2</sup> = 113, Readmission Events	60.00001); l <sup>2</sup> 0001) 60. df = 4 (P n group N Total	= 90% < 0.00001). o readmissio Events	on group Total		Odds Ratio M-H. Random, 95% C	Favours No readmission Favours Readmission Odds Ratio
Fotal events Heterogeneity: Chi <sup>2</sup> = 127.8 Fest for overall effect: Z = 4 Fest for suboroup difference Study or Subgroup 3.11.1 Home Bhattacharya et al. 2011	10, df = 13 (P < 1.58 (P < 0.00 es: Chi <sup>2</sup> = 113, Readmission Events 12	60.00001); l <sup>2</sup> 001) 60. df = 4 (P	= 90% < 0.00001). o readmissic Events 134	on group	5.6%	Odds Ratio M-H. Random, 95% C 0.32 [0.13, 0.81]	Favours No readmission Favours Readmission Odds Ratio
Fotal events feterogeneity: Chi <sup>2</sup> = 127.8 Fest for overall effect: Z = 4 fest for suboroup difference <u>Study or Subgroup</u> 3.11.1 Home Bhattacharya et al. 2011 Bjørkreim et al. 2018	10, df = 13 (P < 1.58 (P < 0.00 es: Chi <sup>2</sup> = 113. Readmission Events 12 77	20.00001); l <sup>2</sup> 0001) 60. df = 4 (P Total 22 200	= 90% < 0.00001).   o readmissic Events 134 928	on group Total 170 1674	5.6% 9.9%	Odds Ratio M-H. Random. 95% C 0.32 (0.13, 0.81) 0.50 (0.37, 0.68)	Favours No readmission Favours Readmission Odds Ratio
Fotal events Heterogeneity: Chi <sup>2</sup> = 127.8 Fest for overall effect: Z = 4 Fest for subaroup difference Study or Subgroup	10, df = 13 (P < 1.58 (P < 0.00 es: Chi <sup>2</sup> = 113, Readmission Events 12	2 0.00001); l <sup>2</sup> 1001) 60. df = 4 (P 1 group N Total 22	= 90% < 0.00001). o readmissic Events 134	on group <u>Total</u> 170	5.6%	Odds Ratio M-H. Random, 95% C 0.32 [0.13, 0.81]	Favours No readmission Favours Readmission Odds Ratio
Total events Total events Test for overall effect: Z = 4 Fest for subaroup difference Study or Subaroup Study or Subaroup Study or Subaroup Shatascharya et al. 2011 Bjørkreim et al. 2018 Vahidy et al. 2017 Subotati (95% CI) Total events Heterogeneity: Tau <sup>2</sup> = 0.02;	0, df = 13 (P < 1.58 (P < 0.00 ss: Chi <sup>2</sup> = 113. Readmission <u>Events</u> 12 77 13326 13415 Chi <sup>2</sup> = 3.82, d	22 200 360.25 38847 f = 2 (P = 0.1	= 90% < 0.00001).   o readmissic Events 134 928 128838 129900	on group Total 170 1674 280692	5.6% 9.9% 10.8%	Odds Ratio M-H. Random. 95% C 0.32 [0.13, 0.81] 0.50 [0.37, 0.68] 0.62 [0.61, 0.63]	Favours No readmission Favours Readmission Odds Ratio
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Total events Total events telerogeneity: Chi <sup>2</sup> = 127.8: sets for overall effect: Z = 4 fest for subaroup difference Study or Subaroup Study	0, df = 13 (P < 1.58 (P < 0.00 es: Chi <sup>2</sup> = 113. Readmission Events 12 77 13326 13415 Chi <sup>2</sup> = 3.82, d .09 (P < 0.000 rtment 10 0	22 200 38625 38847 f = 2 (P = 0.1 200 33625 38847 f = 2 (P = 0.1 01)	= 90% < 0.000011. i o readmissic 128038 129000 5); l <sup>2</sup> = 48%	n group Total 170 1674 280692 282536 1674 1841	5.6% 9.9% 10.8% 26.3% 7.3% 1.1%	Odds Ratio <u>M-H. Random. 95% C</u> 0.32 (0.13, 0.81) 0.50 (0.37, 0.68) 0.62 (0.61, 0.63) 0.56 (0.45, 0.70] 0.56 (0.45, 0.70] 0.57 (0.30, 1.11] 0.17 (0.01, 2.71]	Favours No readmission Favours Readmission Odds Ratio M-H. Random, 95% Cl
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Fotal events feterogeneity: Chi <sup>2</sup> = 127.8 fest for overall effect: Z = 4 Fest for subgroup difference Study or Subgroup 3.11.1 Home Bhattacharya et al. 2011 Bjerkreim et al. 2018 Vahidy et al. 2017	0, df = 13 (P - 4 1.58 (P < 0.00 sr: Ch <sup>2</sup> = 113; Readmission Events 12 77 13326 13415 Ch <sup>2</sup> = 3.82, d Ch <sup>2</sup> = 3.82, d 5.57 (P = 0.01) 28 2 Ch <sup>2</sup> = 1.88, d 5.77 (P = 0.01)	22 200 33625 38847 f = 2 (P = 0.1 22 200 33625 38847 f = 2 (P = 0.1 200 33 35 504 90 862 f = 4 (P = 0.4 22 200 33 22 201 33 22 200 33 22 200 33 22 200 33 22 200 33 22 200 33 23 201 201 200 33 201 200 33 201 200 33 201 200 33 200 33 200 33 200 33 200 33 200 33 200 33 200 33 200 33 200 33 200 33 200 33 200 33 200 33 200 33 200 33 200 33 200 33 200 33 200 30 200 30 200 30 200 30 200 30 200 30 200 30 200 30 200 30 200 30 200 30 200 30 200 30 200 30 200 30 200 20	= 90% < 0.00001). o readmissic Events 134 928 128838 129900 5); I <sup>2</sup> = 48% 141 152 112 722 186 33; I <sup>2</sup> = 0% 32 376 408 7); I <sup>2</sup> = 47% 166 193 359	n group Total 170 1674 280692 282536 1674 1841 928 6606 170 1674 1844	5.6% 9.9% 10.8% 26.3% 7.3% 7.3% 1.1% 6.6% 10.4% 33.3%	Odds Ratio M:H. Random, 95% C 0.32 (0.13, 0.81) 0.50 (0.37, 0.68) 0.62 (0.61, 0.63) 0.56 (0.45, 0.70) 0.57 (0.30, 1.11] 0.17 (0.01, 2.71) 1.29 (0.60, 2.76] 0.81 (0.66, 0.95] 0.73 (0.41, 1.33) 0.79 (0.66, 0.95] 1.82 (1.33, 2.49) 2.21 (1.21, 4.05] 1.48 [0.96, 2.27] 0.55 (0.13, 2.32]	Favours No readmission Favours Readmission
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Total events           Total events           learengeneity: Chi <sup>2</sup> = 127.8           set for varial effect: Z = 4           set for subbaroup difference           Study or Subaroup difference           Study or Subaroup difference           Shattacharya et al. 2011           Bintacharya et al. 2011           Subotal (95% CI)           Total events           Heterogeneity: Tau <sup>2</sup> = 0.02;           Total events           Subotal (95% CI)           Total events           Subotal (95% CI)           Total events           Subotal (95% CI)           Total events           Heterogeneity: Tau <sup>2</sup> = 0.02;           Total events           Subotal (95% CI)           Total events           Heterogeneity: Tau <sup>2</sup> = 0.11;           Test for overall effect: Z = 2           3.11.4 Home nursing           Björkreim et al. 2018           Khanevski et al. 2018           Khanevard (95% CI)           Total events           Heterogeneity: Tau <sup>2</sup> = 0.21;           Total events           Heterogenenity:	0, df = 13 (P - 4 1.58 (P < 0.00 sr: Ch <sup>2</sup> = 113; Readmission Events 12 77 13326 13415 Chi <sup>2</sup> = 3.82, d 00 (P < 0.000 rtment 10 10 10 10 10 10 10 10 10 10	200001); l <sup>2</sup> 60.0001); l <sup>2</sup> 60. df = 4 (P group N Total 22 2000 38625 38847 ff = 2 (P = 0.1 200 33 35 504 90 862 ff = 4 (P = 0.1 200 33 35 ff = 1 (P = 0.1 200 33 ff = 1 (P = 0.1	= 90% < 0.00001). o readmissic Events 134 928 128838 129900 5); l <sup>2</sup> = 48% 141 152 112 722 186 3; l <sup>2</sup> = 0% 32 376 408 7; l <sup>2</sup> = 47% 166 193 359 9); l <sup>2</sup> = 41% 47 59	n group Total 170 1874 280692 282536 1674 1841 472 1691 972 6606 170 1674 1844 1674 1844	5.6% 9.9% 10.8% 7.3% 1.1% 6.6% 10.4% 7.8% 33.3% 5.6% 9.8% 15.4%	Odds Ratio M:H. Random, 95% C 0.32 (0.13, 0.81) 0.50 (0.37, 0.68) 0.62 (0.61, 0.63) 0.56 (0.45, 0.70) 0.57 (0.30, 1.11] 0.17 (0.01, 2.71) 1.29 (0.60, 2.76] 0.81 (0.66, 0.95] 0.73 (0.41, 1.33) 0.79 (0.66, 0.95] 1.82 (1.33, 2.49) 2.21 (1.21, 4.05] 1.48 (0.96, 2.27) 0.55 (0.13, 2.32) 1.15 (0.49, 2.69] 3.01 (1.67, 5.42)	Favours No readmission Favours Readmission
Total events           Total events           Total events           Tess for overall effect: Z = 4           Study or Subgroup           3.11.1 Home           Bantacharya et al. 2011           Bjørkreim et al. 2018           Varidig et al. 2017           Subtotal (95% CI)           Total events           Total events           Subtotal (95% CI)           Total events           Folarogeneity: Tau <sup>2</sup> = 0.00;           Test for overall effect: Z = 2           3.1.1.2 Rehabilitation depa           Bjørkreim et al. 2013           Subtotal (95% CI)           Total events           Hotorogeneity: Tau <sup>2</sup> = 0.11;           Test for overall effect: Z = 2           3.1.4 Home nursing           Bjørkreim et al. 2018           Knanevski et al. 2018           Subtotal (95% CI)           Total events           Het	0, df = 13 (P - 4 1.58 (P < 0.00 sr: Ch <sup>2</sup> = 113; Readmission Events 12 77 13326 13415 Chi <sup>2</sup> = 3.82, d 00 (P < 0.000 rtment 10 10 10 10 10 10 10 10 10 10	200001); l <sup>2</sup> 60.0001); l <sup>2</sup> 60. df = 4 (P group N Total 22 200 38625 38847 ff = 2 (P = 0.1 200 33 35 504 90 862 ff = 4 (P = 0.1 220 33 35 504 90 862 ff = 1 (P = 0.1 200 33 233 ff = 1 (P = 0.1 200 33 35 200 35 200 35 200 35 200 200 200 200 200 200 200 20	= 90% < 0.00001).   o readmissic Events 134 928 128838 129900 5):   <sup>2</sup> = 48% 1411 152 112 722 186 1313 3):   <sup>2</sup> = 0% 32 376 7):   <sup>2</sup> = 47% 166 193 359 9):   <sup>2</sup> = 41% 47 59 106	n group Total 170 1674 280692 282536 1674 1841 472 1691 928 6606 170 1674 1844	5.6% 9.9% 10.8% 7.3% 1.1% 6.6% 7.8% 33.3% 5.6% 9.0% 3.3% 12.3% 7.9% 4.8%	Odds Ratio MH. Random, 95% C 0.32 (0.13, 0.81) 0.50 (0.37, 0.68) 0.62 (0.61, 0.63) 0.56 (0.45, 0.70] 0.57 (0.30, 1.11) 0.17 (0.01, 2.71) 1.29 (0.60, 2.76) 0.81 (0.66, 0.99) 0.73 (0.41, 1.33) 0.79 (0.66, 0.95] 1.82 (1.33, 2.49) 2.21 (1.21, 4.05] 1.82 (1.33, 2.49) 2.21 (1.21, 4.05] 1.48 (0.96, 2.27) 0.55 (0.13, 2.32) 1.15 (0.49, 2.68] 3.01 [1.67, 5.42] 4.17 [1.42, 12.23]	Favours No readmission Favours Readmission
Total events Total events letterogeneity: Chi <sup>2</sup> = 127.8 lettor overall effect: Z = 4 lettor subbrouw difference lettor overall effect: Z = 4 lettor subbrouw difference lettorowerall effect: Z = 0 lettorowerall effect: Z = 0 lettorowerall effect: Z = 5 lettorowerall effect: Z = 0 lettorowerall	0, df = 13 (P - 4 1.58 (P < 0.00 sr: Ch <sup>2</sup> = 113; Readmission Events 12 77 13326 13415 Chi <sup>2</sup> = 3.82, d 00 (P < 0.000 rtment 10 10 10 10 10 10 10 10 10 10	200001); I <sup>2</sup> 60.0001); I <sup>2</sup> 60. df = 4 (P group N Total 22 200 38625 38847 ff = 2 (P = 0.1 200 33 35 504 90 862 ff = 4 (P = 0.4 22 200 33 35 504 90 862 ff = 4 (P = 0.1 200 33 233 ff = 1 (P = 0.6 01)	= 90% < 0.00001).   o readmissic Events 134 928 128838 129900 5):   <sup>2</sup> = 48% 1411 152 112 722 186 1313 3):   <sup>2</sup> = 0% 32 376 7):   <sup>2</sup> = 47% 166 193 359 9):   <sup>2</sup> = 41% 47 59 106	n group Total 170 1674 280692 282536 1674 1841 1472 1691 928 6606 170 1674 1844 1841 3515	5.6% 9.9% 10.8% 26.3% 7.3% 1.1% 6.6% 7.8% 33.3% 15.4% 9.0% 3.3% 12.3%	Odds Ratio M:H. Random, 95% C 0.32 (0.13, 0.81) 0.50 (0.37, 0.68) 0.62 (0.61, 0.63) 0.56 (0.45, 0.70) 0.57 (0.30, 1.11] 0.17 (0.01, 2.71) 1.29 (0.60, 2.76] 0.81 (0.66, 0.95] 0.73 (0.41, 1.33) 0.79 (0.66, 0.95] 1.82 (1.33, 2.49) 2.21 (1.21, 4.05] 1.82 (1.33, 2.49) 2.21 (1.21, 4.05] 1.48 (0.96, 2.27] 0.55 (0.13, 2.32] 1.15 (0.49, 2.69] 3.01 (1.67, 5.42] 4.17 [1.42, 12.23] 3.24 (1.94, 5.43]	Favours No readmission Favours Readmission
Total events         Fordial events           Total events         Leterogeneity: Chi <sup>2</sup> = 127.8           Leterogeneity: Chi <sup>2</sup> = 127.8         Stor vorall effect: Z = 4           Ses for overall effect: Z = 4         Stor vorall effect: Z = 4           Statt or suboroup difference         Statt or vorall effect: Z = 4           Shattacharya et al. 2011         Stubtotal (95% CI)           Total events         Occ;           Statto or vorall effect: Z = 5         St.1.2           Statto or vorall effect: Z = 5         St.1.2           Statto avents         et al. 2017           Subtotal (95% CI)         Total events           Charcey events         et al. 2013           Subtotal (95% CI)         Total events           Total events         et al. 2018           Shattacharya et al. 2018         Subtotal (95% CI)           Total events         et al. 2018           Subtotal (95% CI)         Total events           Total events         et al. 2018           Subtotal (95% CI)         Total events           Subto	0, df = 13 (P < 1, 58 (P < 0,00 1.58 (P < 0,00 Str. Chi <sup>2</sup> = 113; Chi <sup>2</sup> = 13; Chi <sup>2</sup> = 13; Chi <sup>2</sup> = 13; Chi <sup>2</sup> = 13; Chi <sup>2</sup> = 3, 22; Chi <sup>2</sup> = 1, 28; Chi <sup>2</sup> = 1, 29; Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0); Chi <sup>2</sup> = 0, 27; d, 47; (P < 0, 0); Chi <sup>2</sup> = 0, 27; (P < 0, 0); Chi <sup>2</sup> = 0, 27; (P <	200001); l <sup>2</sup> 60.0001); l <sup>2</sup> 60. df = 4 (P group N Total 22 200 38625 38847 ff = 2 (P = 0.1 200 33 35 504 90 862 ff = 4 (P = 0.1 220 33 35 504 90 862 ff = 1 (P = 0.1 200 33 233 ff = 1 (P = 0.1 200 33 35 200 35 200 35 200 35 200 200 200 200 200 200 200 20	= 90% < 0.00001).   o readmissic Events 134 928 128838 129900 5):   <sup>2</sup> = 48% 1411 152 112 722 186 1313 3):   <sup>2</sup> = 0% 32 376 408 7):   <sup>2</sup> = 47% 166 193 99:   <sup>2</sup> = 41% 47 59 0):   <sup>2</sup> = 0%	n group Total 170 1674 280692 282536 1674 1841 472 1691 928 6606 170 1674 1844	5.6% 9.9% 10.8% 26.3% 7.3% 1.1% 6.6% 7.8% 33.3% 15.4% 9.0% 3.3% 12.3%	Odds Ratio MH. Random, 95% C 0.32 (0.13, 0.81) 0.50 (0.37, 0.68) 0.62 (0.61, 0.63) 0.56 (0.45, 0.70] 0.57 (0.30, 1.11) 0.17 (0.01, 2.71) 1.29 (0.60, 2.76) 0.81 (0.66, 0.99) 0.73 (0.41, 1.33) 0.79 (0.66, 0.95] 1.82 (1.33, 2.49) 2.21 (1.21, 4.05] 1.82 (1.33, 2.49) 2.21 (1.21, 4.05] 1.48 (0.96, 2.27) 0.55 (0.13, 2.32) 1.15 (0.49, 2.68] 3.01 [1.67, 5.42] 4.17 [1.42, 12.23]	Favours No readmission Favours Readmission
Total events Total events letterogeneity: Chi <sup>2</sup> = 127.8 lettor overall effect: Z = 4 lettor subbrouw difference lettor overall effect: Z = 4 lettor subbrouw difference lettorowerall effect: Z = 0 lettorowerall effect: Z = 0 lettorowerall effect: Z = 5 lettorowerall effect: Z = 0 lettorowerall	0, off = 13 (P < 1, 28 (P < 0.00 1.58 (P < 0.00 s: Ch <sup>2</sup> = 113; Ch <sup>2</sup> = 3.82; display (P < 0.00 12377 13326 13415 Chi <sup>2</sup> = 3.82; display (P < 0.00 rtment 10 10 10 10 10 10 10 10	22 200 38625 38647 4 (P = 0.1 22 200 38627 4 = 2 (P = 0.1 200 33 365 504 90 862 f = 4 (P = 0.1 22 200 33 35 504 90 862 f = 1 (P = 0.1 200 33 1 (P = 0.1 200 33 233 1 (P = 0.6 201 200 33 233 1 (P = 0.6 200 33 233 1 (P = 0.6 200 200 200 200 200 200 200 20	= 90% < 0.00001). i oreadmissic Events 134 928 128838 129900 5); i <sup>2</sup> = 48% 1411 152 112 722 186 1313 3); i <sup>2</sup> = 0% 32 376 193 9); i <sup>2</sup> = 47% 166 193 9); i <sup>2</sup> = 41% 47 59 00; i <sup>2</sup> = 0% 132086	n group Total 170 1674 280692 282536 1674 1841 472 1661 928 6606 1700 1674 1844 1844 1844 1674 1841 3515 1674 1841 3515	5.6% 9.9% 10.8% 26.3% 7.3% 1.1% 6.6% 7.8% 33.3% 15.4% 9.0% 3.3% 12.3%	Odds Ratio M:H. Random, 95% C 0.32 (0.13, 0.81) 0.50 (0.37, 0.68) 0.62 (0.61, 0.63) 0.56 (0.45, 0.70) 0.57 (0.30, 1.11] 0.17 (0.01, 2.71) 1.29 (0.60, 2.76] 0.81 (0.66, 0.95] 0.73 (0.41, 1.33) 0.79 (0.66, 0.95] 1.82 (1.33, 2.49) 2.21 (1.21, 4.05] 1.82 (1.33, 2.49) 2.21 (1.21, 4.05] 1.48 (0.96, 2.27] 0.55 (0.13, 2.32] 1.15 (0.49, 2.69] 3.01 (1.67, 5.42] 4.17 [1.42, 12.23] 3.24 (1.94, 5.43]	Favours No readmission Favours Readmission

Figure 12 Influence of discharge destination on 30-day readmission in patients with ischemic stroke (Fixed effects model, Random effects model).

Study or Subgroup	Events	n group Total	No readmiss Events		Weight	Odds Ratio M-H. Fixed, 95% CI	Odds Ratio M-H. Fixed, 95% Cl
3.12.1 Medicare							
Shattacharya et al. 2011	13	22	80	170	0.0%	1.63 [0.66, 4.00]	
loehme et al. 2018 Qiu et al. 2021	34891 356	48125 504	218013 1153	323462 1691	31.1% 0.3%	1.28 [1.25, 1.30] 1.12 [0.90, 1.39]	+
Subtotal (95% CI)	000	48651	1100	325323	31.5%	1.27 [1.25, 1.30]	1 <b>•</b>
otal events	35260		219246				
leterogeneity: Chi <sup>2</sup> = 1.59,	df = 2 (P = 0.4						
est for overall effect: Z = 2		,001)					
.12.2 National health ins		1700	10000	07000	0.40		
lan et al. 2015 .ee et al. 2019	1498 3768	1782 4124	13093 37741	97682 40605	0.1%	34.08 [29.98, 38.74] 0.80 [0.72, 0.90]	-
Subtotal (95% CI)	3700	5906	3//41	138287	1.4%	4.49 [4.12, 4.88]	▲
Total events Heterogeneity: Chi <sup>2</sup> = 1818 Test for overall effect: Z = 3			50834 * = 100%				
	15.04 (P < 0.00	,001)					
12.3 Medical aid Boehme et al. 2018	3946	48125	22642	323462	10.8%	1.19 [1.15, 1.23]	10
crispo et al. 2018	636	6205	38455	433477	2.0%	1.17 [1.08, 1.27]	+
ee et al. 2019	356	4124	2864	40605	1.0%	1.25 [1.11, 1.40]	-
ahidy et al. 2017	2936	38625	19087	280692	8.6%	1.13 [1.08, 1.17]	
ubtotal (95% CI)		97079		1078236	22.3%	1.17 [1.14, 1.19]	,
otal events	7874		83048				
leterogeneity: Chi <sup>2</sup> = 4.87, est for overall effect: Z = 1							
.12.4 Private							
Shattacharya et al. 2011	4	22	60	170	0.0%	0.41 [0.13, 1.26]	
oehme et al. 2018	6545	48125	55312	323462	24.8%	0.76 [0.74, 0.78]	
ahidy et al. 2017	5137	38625	47718	280692	20.1%	0.75 [0.73, 0.77]	
ubtotal (95% CI)	44000	86772	100000	604324	44.9%	0.76 [0.74, 0.77]	
otal events	11686	201-12 - 001	103090				
leterogeneity: Chi <sup>2</sup> = 1.94, est for overall effect: Z = 2	or = 2 (P = 0.3 6.52 (P < 0.00	56); 1* = 0% 0001)					
.12.5 Other							
hattacharya et al. 2011	5	22	29	170	0.0%	1.43 [0.49, 4.19]	
Suri et al. 2013	84	90	837	928	0.0%	1.52 [0.65, 3.58]	
Subtotal (95% CI)		112		1098	0.0%	1.49 [0.76, 2.92]	
otal events	89		866				
leterogeneity: Chi2 = 0.01,							
est for overall effect: Z = 1	.17 (P = 0.24)						
otal (95% CI)		238520		2147268	100.0%	1.06 [1.05, 1.07]	)
otal events	60175		457084				
Heterogeneity: Chi <sup>2</sup> = 4220.			l <sup>2</sup> = 100%				0.1 0.2 0.5 1 2 5
fest for overall effect: Z = 9							Favours No readmission Favours Readmission
est for subdroub difference	es: Chi <sup>2</sup> = 250	8.14. df = 4 (	P < 0.00001	. I² = 99.8%			
	Readmission	group N	o readmissio	on group	Walaht	Odds Ratio	Odds Ratio
tudy or Subgroup				on group	Weight	Odds Ratio M-H. Random, 95% Cl	Odds Ratio
tudy or Subgroup .12.1 Medicare hattacharya et al. 2011	Readmission Events 13	group N Total 22	o readmissio Events 80	on group Total 170	4.3%	M-H. Random, 95% Cl 1.63 [0.66, 4.00]	Odds Ratio
tudy or Subgroup .12.1 Medicare hattacharya et al. 2011 oehme et al. 2018	Readmission Events 13 34891	group N Total 22 48125	o readmissio Events 80 218013	on group Total 170 323462	4.3% 8.5%	M-H. Random, 95% Cl 1.63 [0.66, 4.00] 1.28 [1.25, 1.30]	Odds Ratio
tudy or Subgroup .12.1 Medicare hattacharya et al. 2011 ochme et al. 2018 tiu et al. 2021	Readmission Events 13	group N Total 22	o readmissio Events 80	on group Total 170	4.3%	M-H. Random, 95% Cl 1.63 [0.66, 4.00] 1.28 [1.25, 1.30] 1.12 [0.90, 1.39]	Odds Ratio
tudy or Subgroup .12.1 Medicare hattacharya et al. 2011 oehme et al. 2018 iu et al. 2021 ubtotal (95% CI)	Readmission Events 13 34891	group N Total 22 48125 504	o readmissio Events 80 218013	on group Total 170 323462 1691	4.3% 8.5% 8.1%	M-H. Random, 95% Cl 1.63 [0.66, 4.00] 1.28 [1.25, 1.30]	Odds Ratio
tudy or Subgroup 12.1 Medicare hattacharya et al. 2011 ochme et al. 2018 iu et al. 2021 ubtotal (95% Cl) otal events eterogeneiby: Tau <sup>2</sup> = 0.00;	Readmission Events 13 34891 356 35260 Chi <sup>2</sup> = 1.59, df	22 48125 504 48651 f = 2 (P = 0.4	o readmissio Events 80 218013 1153 219246	on group Total 170 323462 1691	4.3% 8.5% 8.1%	M-H. Random, 95% Cl 1.63 [0.66, 4.00] 1.28 [1.25, 1.30] 1.12 [0.90, 1.39]	Odds Ratio
tudy or Subgroup 12.1 Medicare hattacharya et al. 2011 ochme et al. 2018 iu et al. 2021 ubtotal (95% Cl) otal events eterogeneiby: Tau <sup>2</sup> = 0.00;	Readmission Events 13 34891 356 35260 Chi <sup>2</sup> = 1.59, df	22 48125 504 48651 f = 2 (P = 0.4	o readmissio Events 80 218013 1153 219246	on group Total 170 323462 1691	4.3% 8.5% 8.1%	M-H. Random, 95% Cl 1.63 [0.66, 4.00] 1.28 [1.25, 1.30] 1.12 [0.90, 1.39]	Odds Ratio
tudy or Subgroup 12.1 Medicare hattacharya et al. 2011 ochme et al. 2018 iu et al. 2021 ubototal (95% CI) tal events eterogeneity: Tau <sup>2</sup> = 0.00; est for overall effect: Z = 22 12.2 National health insu	Readmission Events 13 34891 356 35260 Chi <sup>2</sup> = 1.59, df 2.37 (P < 0.000 rrance	22 48125 504 48651 5 2 (P = 0.4 001)	o readmissio Events 80 218013 1153 219246 5); I <sup>2</sup> = 0%	70 group Total 170 323462 1691 325323	4.3% 8.5% 8.1% 20.9%	M.H. Random, <u>95% Ci</u> 1.63 [0.66, 4.00] 1.28 [1.25, 1.30] 1.12 [0.90, 1.39] 1.27 [1.25, 1.30]	Odds Ratio
tudy or Subgroup 12.1 Medicare hattacharya et al. 2011 ochme et al. 2018 iu et al. 2021 ubtotal (95% CI) otal events eterogeneity: Tau <sup>2</sup> = 0.00; est for overall effect: Z = 22 12.2 National health insu an et al. 2015	Readmission Events 13 34891 356 35260 Chi <sup>2</sup> = 1.59, df 2.37 (P < 0.000 irance 1498	group         N           Total         22           48125         504           48651         2           2         2           48651         2           2         2           1782         1782	o readmissic Events 80 218013 1153 219246 5); I <sup>2</sup> = 0% 13093	70000000000000000000000000000000000000	4.3% 8.5% 8.1% 20.9%	M-H. Random. 95% Ci 1.63 (0.66, 4.00) 1.28 [1.25, 1.30] 1.12 (0.90, 1.39] 1.27 [1.25, 1.30] 34.08 [29.98, 38.74]	Odds Ratio
tudy or Subgroup 12.1 Medicare hattacharya et al. 2011 ochme et al. 2018 iu et al. 2021 ubotal (95% CI) total events eterogeneity: Tau <sup>2</sup> = 0.00; est for overall effect: Z = 22 12.2 National health insu an et al. 2015 set al. 2019	Readmission Events 13 34891 356 35260 Chi <sup>2</sup> = 1.59, df 2.37 (P < 0.000 rrance	22 48125 504 48651 2 = 2 (P = 0.4 001) 1782 4124	o readmissio Events 80 218013 1153 219246 5); I <sup>2</sup> = 0%	70 group Total 170 323462 1691 325323 97682 40605	4.3% 8.5% 8.1% 20.9% 8.3% 8.4%	M-H. Random. 95% Ci 1.63 [0.66, 4.00] 1.28 [1.25, 1.30] 1.12 [0.30, 1.39] 1.27 [1.25, 1.30] 34.08 [29.98, 38.74] 0.80 [0.72, 0.90]	Odds Ratio
tudy or Subgroup 12.1 Medicare hattacharya et al. 2011 oehme et al. 2018 iu et al. 2021 ubtotal (95% CI) total events est for overall effect: Z = 22 12.2 National health insu an et al. 2015 ubtotal (95% CI)	Readmission Events 13 34891 356 35260 Chi <sup>2</sup> = 1.59, df 2.37 (P < 0.000 irance 1498 3768	group         N           Total         22           48125         504           48651         2           2         2           48651         2           2         2           1782         1782	o readmissic Events 80 218013 1153 219246 5); I <sup>2</sup> = 0% 13093 37741	70000000000000000000000000000000000000	4.3% 8.5% 8.1% 20.9%	M-H. Random. 95% Ci 1.63 (0.66, 4.00) 1.28 [1.25, 1.30] 1.12 (0.90, 1.39] 1.27 [1.25, 1.30] 34.08 [29.98, 38.74]	Odds Ratio
tudy or Subgroup 12.1 Medicare hattacharya et al. 2011 oehme et al. 2018 iu et al. 2021 ubtotal (95% CI) otal events eterogeneity: Tau <sup>2</sup> = 0.00; est for overall effect: Z = 22 12.2 National health insu an et al. 2015 se et al. 2019 ubtotal (95% CI) ubtotal (95% CI)	Readmission Events 13 34891 356 35260 Chi <sup>2</sup> = 1.59, df 2.37 (P < 0.000 irance 1498 3768 5266	roup N Total 22 48125 504 48651 (= 2 (P = 0.4 001) 1782 4124 5906	o readmissic Events 80 218013 1153 219246 5); I <sup>2</sup> = 0% 13093 37741 50834	70000000000000000000000000000000000000	4.3% 8.5% 8.1% 20.9% 8.3% 8.4%	M-H. Random. 95% Ci 1.63 [0.66, 4.00] 1.28 [1.25, 1.30] 1.12 [0.30, 1.39] 1.27 [1.25, 1.30] 34.08 [29.98, 38.74] 0.80 [0.72, 0.90]	Odds Ratio
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Figure 13 Influence of health care payment model on 30-day readmission in patients with ischemic stroke (Fixed effects model, Random effects model).

# Deng et al. Meta-analysis of risk factors for readmission of stroke

Study or Subgroup	Readmission Events	group Total	No readmissi Events		Weight	Odds Ratio M-H. Fixed, 95% CI	Odds Ratio M-H. Fixed, 95% Cl
.13.1 Atherosclerosis							- 68
hattacharya et al. 2011	12	22	69	170	2.4%	1.76 [0.72, 4.29]	1-10
jerkreim et al. 2018	42	200	202	1674	11.1%	1.94 [1.34, 2.81]	
ubtotal (95% CI)		222		1844	13.5%	1.91 [1.35, 2.69]	-
otal events eterogeneity: Chi <sup>2</sup> = 0.04, s	54 df = 1 (P = 0.84	): l <sup>2</sup> = 0%	271				
est for overall effect: Z = 3.							
.13.2 Cardioembolism			15	170	1.001	1 00 10 00 1 051	5
hattacharya et al. 2011	2	22	15	170	1.0%	1.03 [0.22, 4.85]	
jerkreim et al. 2018	75	200 222	530	1674	23.1%	1.30 [0.96, 1.76]	
otal (95% CI)	77	222	545	1844	24.1%	1.28 [0.95, 1.73]	
leterogeneity: Chi <sup>2</sup> = 0.08, est for overall effect: Z = 1.	df = 1 (P = 0.78	); I² = 0%	545				
3.13.3 Small vessel diseas Bhattacharya et al. 2011	3	22	57	170	3.7%	0.31 [0.09, 1.10]	
Bjerkreim et al. 2018	12	200	193	1674	12.7%	0.49 [0.27, 0.89]	<b>_</b>
Khanevski et al. 2018	1	33	204	1841	2.3%	0.25 [0.03, 1.84]	
Subtotal (95% CI)		255		3685	18.6%	0.43 [0.25, 0.72]	•
otal events	16		454				
leterogeneity: Chi <sup>2</sup> = 0.71, est for overall effect: Z = 3.		); I² = 0%					
.13.4 Other determined	,						
Bhattacharya et al. 2011	2	22	9	170	0.6%	1.79 [0.36, 8.87]	
Bjerkreim et al. 2018	6	200	26	1674	1.8%	1.96 [0.80, 4.82]	
Khanevski et al. 2018	2	33	30	1841	0.3%	3.89 [0.89, 17.02]	
Subtotal (95% CI)		255		3685	2.7%	2.15 [1.07, 4.33]	
Total events	10		65				
Heterogeneity: Chi <sup>2</sup> = 0.71, Fost for overall effect: Z = 2.		); I <sup>2</sup> = 0%					
3.13.5 Undetermined							
Bhattacharya et al. 2011	3	22	20	170	1.3%	1.18 [0.32, 4.36]	
Bjerkreim et al. 2018	65	200	723	1674	34.1%	0.63 [0.46, 0.86]	
Khanevski et al. 2018	12	33	776	1841	5.7%	0.78 [0.38, 1.60]	
Subtotal (95% CI)		255		3685	41.0%	0.67 [0.51, 0.89]	•
Total events	80		1519				
leterogeneity: Chi <sup>2</sup> = 1.04,		); I² = 0%					
Test for overall effect: Z = 2.							
Total (95% CI)		1209		14743	100.0%	0.98 [0.84, 1.15]	<b>♦</b>
fotal events	237		2854				
	H - 40 /D +0						
Heterogeneity: Chi <sup>2</sup> = 42.08, Fest for overall effect: Z = 0.	.25 (P = 0.80)			= 89.6%			0.02 0.1 1 10 Favours No readmission Favours Readmission
Heterogeneity: Chi <sup>2</sup> = 42.08, Fest for overall effect: Z = 0. Fest for subaroup difference	.25 (P = 0.80) es: Chi <sup>2</sup> = 38.61 Readmission g	df = 4 (P	< 0.00001). I <sup>2</sup> No readmission	n group		Odds Ratio	Favours No readmission Favours Readmission Odds Ratio
Heterogeneity: Chi <sup>2</sup> = 42.08, Fest for overall effect: Z = 0. Fest for subaroup difference	.25 (P = 0.80) es: Chi <sup>2</sup> = 38.61	df = 4 (P	< 0.00001). I <sup>2</sup>	n group	Weight I	Odds Ratio M-H. Random, 95% C	Favours No readmission Favours Readmission Odds Ratio
Heterogeneity: Chi <sup>2</sup> = 42.08, Fest for overall effect: Z = 0. Fest for subaroup difference Study or Subgroup	.25 (P = 0.80) es: Chi <sup>2</sup> = 38.61 Readmission g	df = 4 (P	< 0.00001). I <sup>2</sup> No readmission	n group	<u>Weight 1</u> 7.9%		Favours No readmission Favours Readmission Odds Ratio
Heterogeneity: Chi <sup>2</sup> = 42.08, Fest for overall effect: Z = 0. Fest for subaroup difference Study or Subbgroup 1.13.1 Atherosclerosis Bhattacharya et al. 2011 jerkreim et al. 2018	.25 (P = 0.80) es: Chi <sup>2</sup> = 38.61 Readmission g Events	df = 4 (P group M Total	< 0.00001). I <sup>2</sup> No readmission Events	n group Total 170 1674		M-H. Random, 95% C	Favours No readmission Favours Readmission Odds Ratio
Heterogeneity: Chi <sup>2</sup> = 42.08, Fest for overall effect: Z = 0. Fest for subaroup difference Study or Subgroup 5.13.1 Atherosclerosis Bhattacharya et al. 2011	.25 (P = 0.80) es: Chi <sup>2</sup> = 38.61 Readmission <u>c</u> Events	df = 4 (P group M Total 22	< 0.00001). I <sup>2</sup> No readmission Events 69	n group Total 170	7.9%	M-H. Random, 95% C	Favours No readmission Favours Readmission Odds Ratio
teterogeneity: Chi <sup>2</sup> = 42.08, fest for overall effect: Z = 0. fest for subaroup difference 1.13.1 Atherosclerosis Shattacharya et al. 2011 Sjorkreim et al. 2018 Subtotal (95% CI) total events	.25 (P = 0.80) es: Chi <sup>2</sup> = 38.61 Readmission <u>g</u> Events 12 42 54	df = 4 (P Total 22 200 222	< 0.00001). I <sup>2</sup> No readmission Events 69 202 271	n group Total 170 1674	7.9% 12.5%	M-H. Random, 95% C 1.76 [0.72, 4.29] 1.94 [1.34, 2.81]	Favours No readmission Favours Readmission Odds Ratio
Heterogeneity: Chi <sup>2</sup> = 42.08, Fest for overall effect: Z = 0. Fest for subaroup difference Study or Subgroup b.13.1 Atherosclerosis shattacharya et al. 2011 Sjerkreim et al. 2018 Subtotal (95% CI)	.25 (P = 0.80) as: Chi <sup>2</sup> = 38.61 Readmission g Events 12 42 54 Chi <sup>2</sup> = 0.04, df =	df = 4 (P Total 22 200 222 1 (P = 0.1	< 0.00001). I <sup>2</sup> No readmission Events 69 202 271	n group Total 170 1674	7.9% 12.5%	M-H. Random, 95% C 1.76 [0.72, 4.29] 1.94 [1.34, 2.81]	Favours No readmission Favours Readmission Odds Ratio
eletrogeneity: Chi <sup>2</sup> = 42.08 rest for overall effect: Z = 0. fest for subaroup difference <u>study or Subgroup</u> 1.13.1 Atheroselerosis Bhattacharya et al. 2011 Bjørkreim et al. 2018 Subtotal (95% CI) Total events eletrogeneity: Tau <sup>2</sup> = 0.00; rest for overall effect: Z = 3: 1.13.2 Cardioembolism	.25 (P = 0.80) ss: Chi <sup>2</sup> = 38.61 Readmission <u>g</u> <u>Events</u> 12 42 54 Chi <sup>2</sup> = 0.04, df = 70 (P = 0.0002)	df = 4 (P roup N <u>Total</u> 22 200 222 1 (P = 0.0	< 0.00001). I <sup>2</sup> No readmission Events 69 202 271 84); I <sup>2</sup> = 0%	n group Total 170 1674 1844	7.9% 12.5% 20.4%	M-H. Random, 95% C 1.76 [0.72, 4.29] 1.94 [1.34, 2.81] 1.91 [1.36, 2.69]	Favours No readmission Favours Readmission Odds Ratio
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Figure 14 Influence of etiology on 30-day readmission in patients with ischemic stroke (Fixed effects model, Random effects model).

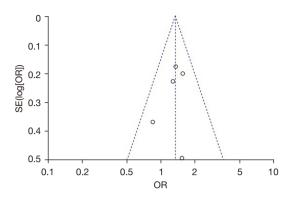


Figure 15 Publication bias of prior stroke.

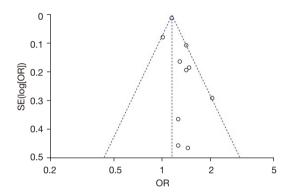


Figure 16 Publication bias of diabetes mellitus.

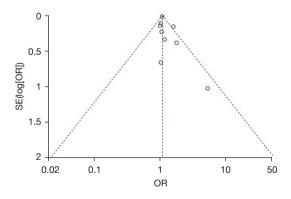


Figure 17 Publication bias of hypertension.

post-discharge rehabilitation showed protective effects. To our surprise, some of these risk factors have been shown to increase the risk of ischemic stroke, but our current study suggested that they did not increase the risk of 30-day readmission in patients with ischemic stroke.

We confirmed that a history of stroke, diabetes

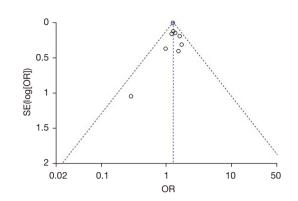


Figure 18 Publication bias of atrial fibrillation.

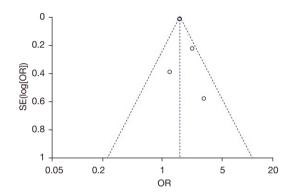


Figure 19 Publication bias of heart failure.

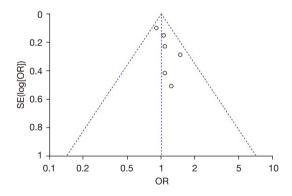


Figure 20 Publication bias of hyperlipidemia.

mellitus, hypertension, atrial fibrillation, or heart failure is a risk factor for 30-day readmission in patients with ischemic stroke. In our current analysis, "history of stroke" had different meanings across the included studies (4,17,18,22,28-30) and was not explicitly defined in each study. Nevertheless, it could be definitively concluded

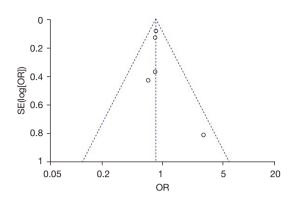


Figure 21 Publication bias of coronary heart disease.

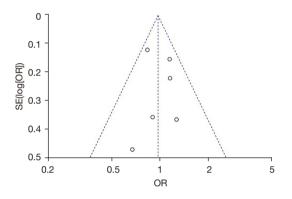


Figure 22 Publication bias of smoking.

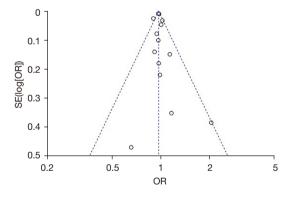


Figure 23 Publication bias of gender (female).

that patients with a history of stroke are more likely to be readmitted within 30 days after discharge than those who experienced stroke for the first time. The possible explanation for this is that patients with previous ischemic stroke episodes have more risk factors, such as worse vascular

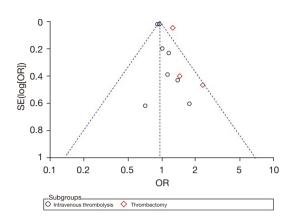


Figure 24 Publication bias of treatment modality.

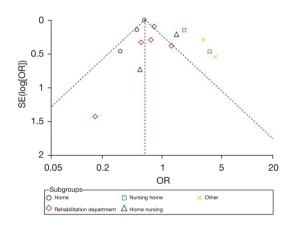


Figure 25 Publication bias of discharge destination.

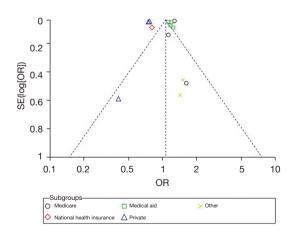


Figure 26 Publication bias of health care payment model.

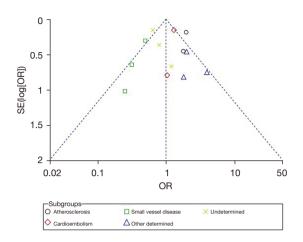


Figure 27 Publication bias of etiology.

condition, older age, or more comorbidities. However, it is unclear how a different, complex stroke history affects 30-day readmission. Whether diabetes mellitus, hypertension, atrial fibrillation, and heart failure are risk factors for 30-day readmission in patients with ischemic stroke remains controversial, even in some multicenter studies that had large sample sizes (2,5,7,18,23,31,32). Our current analysis confirmed the associations of these 4 comorbidities with 30-day readmission. It is possible that when patients have these comorbidities, the inner walls of blood vessels are often damaged and blood is more likely to be in a hypercoagulable state, leading to thrombus formation or dislodgement of existing thrombus, which ultimately cause stroke recurrence. Stroke recurrence is the leading cause of 30-day readmission in patients with ischemic stroke (2,4,7,17,24), and these comorbidities themselves may also directly lead to readmission (15,16,24,31). In addition, the outcomes of recovery from these comorbidities were closely related to medications, outpatient follow-up, and patients' dietary habits and exercise. Furthermore, the patients' conditions and health care capacity varied from region to region, which may explain the inconsistent results across multiple studies. Therefore, for patients with ischemic stroke with a history of stroke, diabetes, hypertension, atrial fibrillation, and/or heart failure, tailored health care should be offered within 30 days after discharge, which may benefit more patients and lower the 30-day readmission rate.

Length of hospital stay and age have been explored in many studies, but the type of data reported varied widely across studies. Boehme *et al.*, Vahidy *et al.*, Lichtman *et al.*, Qiu *et al.*, and Han *et al.* (5,7,18,28,33) presented the means and SDs of length of hospital stay. Bjerkreim *et al.*,

Wen et al., Mittal et al., Khanevski et al., and Kilkenny et al. (4,11,30,34,35) reported the medians and quartiles, while Crispo et al. and Lee et al. (12,36) performed subgroup comparisons. The same was true for age, with means and SD (4,5,7,17,18,22,28,30,34), medians and guartiles (11,35), and subgroup comparisons (12,18,29,33,36) being reported in different articles, which proved problematic in allowing us to obtain accurate quantitative results via meta-analysis. We believe that advanced age is largely a risk factor for 30-day readmission, while the length of hospital stay is still a controversial factor. According to the studies performed by Bambhroliva et al. (3) (n=2,078,854) and by Hirayama et al. (37) (n=620,788), advanced age is a risk factor for 30-day readmission in patients with ischemic stroke, which is consistent with the results of a study in China (2) that included 50,912 patients from 375 hospitals in 29 provinces. Hirayama et al. (37) noted that the 30-day readmission rate was significantly higher in patients older than 65 years compared with those younger than 65 years (65-74 years: OR 1.19, 95% CI: 1.16-1.21; 75-84 years: OR 1.29, 95% CI: 1.27–1.31; >85 years: OR 1.24, 95% CI: 1.22–1.27; all P<0.001). Nouh et al. (29) also showed that the 30-day readmission rate was higher in patients >75 years. Qureshi et al. (17) reported a 19% increase in the odds of readmission for each decade of older age. Compared to young and middle-aged patients, older adult patients had more comorbidities, as well as worse vascular condition, higher blood viscosity, and lower cardiac function, which could lead to hemodynamic deficiencies. As a result, patients with advanced age are more likely to be readmitted. A question then arises: what is the cutoff age for "advanced age"? There was no definite answer in our current analysis. In terms of length of hospital stay, some Korean and American studies (7,12,33,36) suggested that the length of hospital stay affects the 30-day readmission in patients with ischemic stroke, which was corroborated by the results of a few prospective cohort studies (32,38). Conversely, other studies from Norway (4), Australia (35), and China (28) reported opposing results. Unfortunately, some of the prospective studies with large sample sizes did not analyze the length of hospital stay (4,37). A study by Wen et al. (2) showed that a length of hospital stay longer than 7 days was associated with a reduced risk of 30-day readmission. In another study by Wen et al. (11), however, the risk of 30-day readmission was lowest in patients hospitalized for about 10 days, and longer or shorter length of hospital stay increased the risk of readmission. The controversy over the length of hospital stay may be due to differences in region,

11102

sample size, study type, medical resources, and level of care, though one of the key considerations may be as follows: a longer length of hospital stay indicates that the disease is more severe and more difficult to treat; however, the patients receive more medical resources and high-quality care, which theoretically leads to better outcomes and thus lowers readmission rates. A shorter length of hospital stay may have the opposite effect. We hope that multicenter prospective studies with larger sample sizes can further clarify the role of the length of hospital stay.

In our current analysis, 4 risk factors were excluded, including hyperlipidemia, coronary heart disease, smoking, and gender. These 4 factors are known to be risk factors for the development of ischemic stroke. Interestingly, however, they were not associated with 30-day readmission in patients with ischemic stroke. In some previous studies (4,11,32,39), abnormal lipid metabolism and heart-related diseases differed between two groups of patients, but the investigators did not analyze hyperlipidemia and coronary heart disease separately. In addition, although studies with large sample sizes performed by Crispo et al. and Lichtman et al. (12,18) suggested that gender might increase the likelihood of 30-day readmission in patients with ischemic stroke, our analysis did find a basis for this association (1.3 million participants in 13 articles), which was supported by a prospective study performed by Terman et al. (32). This may be due to the fact that, within 30 days of discharge, patients have good medication compliance, their disease is effectively controlled, and acute conditions due to hyperlipidemia and coronary artery disease are relatively rare. For smoking and gender, a period of 30 days may be too short to reflect the impact these factors on readmission, and perhaps a longer period would have shown a difference. It is also possible that the included studies had some limitations in data analysis. For instance, gender was not analyzed in subgroups based on age or disease condition, and no accurate or specific data on smoking were collected.

Regretfully, we failed to analyze the impact of 5 possible risk factors on 30-day readmission in patients with ischemic stroke, including discharge disposition (home, rehabilitation facility, nursing home, home nursing, and others), health care payment model (Medicare, NHS, Medicaid, private insurance, and others), treatment modality (thrombolysis and thrombectomy), and etiology (atherosclerosis, cardiogenic cerebral embolism, small vessel disease, other definite causes, and other unknown causes). Nevertheless, we were the first to perform a detailed and systematic subgroup analysis of these factors. In fact, we performed subgroup analyses for each of these factors, but the literature was insufficient due to heterogeneity. Only intravenous thrombolysis and post-discharge rehabilitation had valuable outcomes in that they were protective factors for 30-day readmission in patients with ischemic stroke. This may be because patients who complete intravenous thrombolysis are those who are sent to the hospital promptly after disease onset for treatment, where they receive excellent medical care and have good outcomes and significant recovery immediately after completion of thrombolysis, which may eliminate the impact of inadequate blood supply to the brain. Therefore, we suggest that active intravenous thrombolysis should be carried out for patients with ischemic stroke who arrive in hospital within the treatment time window according to the standard operating requirements to reduce the risk of 30-day readmission. Postdischarge rehabilitation can help patients effectively control various risk factors, receive more health care, and reduce the risk of 30-day readmission. According to Andrews et al. (40), compared with low- and medium-intensity therapy, highintensity therapy (physical therapy, occupational therapy, and speech therapy) can lower the 30-day readmission rate. However, patients who receive higher-intensity therapy may have more comorbidities and greater illness severity relative to those who receive lower-intensity therapy. We suggest that medical staff should strengthen health education, emphasize the importance of active rehabilitation when patients are discharged from hospital and in outpatient treatment, and provide personalized rehabilitation guidance according to each patient's condition.

Our research also has some limitations. First, some of the factors [e.g., alcohol consumption, marriage, infection, National Institutes of Health Stroke Scale (NIHSS) score, nasogastric tube feeding, and indwelling catheter] were not subjected to meta-analysis because of the limited amount of included literature (41), but they were still very common. Although they have been investigated in a few multicenter studies with large sample sizes, more studies are still needed. Second, some potential risk factors were not included because the number of prospective observational or interventional studies focusing on the same factor was too small for a meta-analysis or a descriptive analysis. Nevertheless, we took these studies into account as much as possible in the analysis. All the studies included in this analysis were case-control studies, so causality cannot be inferred. In addition, recall bias may exist. Third, most of the included articles were from the United States, which

might have had an impact on the study results due to the differences in cultural background, health care services, and research capacity. Some of the included articles did not strictly meet the inclusion or exclusion criteria, which might have also affected our conclusions. Fourth, some of the databases were not searched due to the limited resources of the research institutions. However, the databases used in our current analysis are large international databases that are commonly used in academic research. In particular, we searched Chinese databases, which ensures that the vast majority of the relevant literature was retrieved.

# Conclusions

The 30-day readmission rate remains high in ischemic stroke survivors, ranging from 1.41% to 27.64%. The results varied across countries and regions, with the highest reported 30-day readmission rate from China and the lowest from the United States. Special attention should be paid to patients with a history of stroke, diabetes, hypertension, atrial fibrillation, heart failure, and/or advanced age. Timely intravenous thrombolysis can alleviate the disease, and post-discharge rehabilitation should be encouraged. These interventions help to reduce 30-day readmissions and benefit more patients. In contrast, interventions based on hyperlipidemia, coronary heart disease, smoking status, or gender may not improve the current situation. Additional research is needed on the length of hospital stay, treatment modality, discharge disposition, health care payment model, and etiology to explore their impact on 30-day readmission in patients with ischemic stroke.

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#### Footnote

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*Conflicts of Interest:* All authors have completed the ICMJE uniform disclosure form (available at https://dx.doi.

org/10.21037/apm-21-2884). The authors have no conflicts of interest to declare.

*Ethical Statement:* The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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# References

- GBD 2016 Stroke Collaborators. Global, regional, and national burden of stroke, 1990-2016: a systematic analysis for the Global Burden of Disease Study 2016. Lancet Neurol 2019;18:439-58.
- Wen T, Liu B, Wan X, et al. Risk factors associated with 31-day unplanned readmission in 50,912 discharged patients after stroke in China. BMC Neurol 2018;18:218.
- Bambhroliya AB, Donnelly JP, Thomas EJ, et al. Estimates and Temporal Trend for US Nationwide 30-Day Hospital Readmission Among Patients With Ischemic and Hemorrhagic Stroke. JAMA Netw Open 2018;1:e181190.
- Bjerkreim AT, Khanevski AN, Selvik HA, et al. The Impact of Ischaemic Stroke Subtype on 30-day Hospital Readmissions. Stroke Res Treat 2018;2018:7195369.
- Boehme AK, Kulick ER, Canning M, et al. Infections Increase the Risk of 30-Day Readmissions Among Stroke Survivors. Stroke 2018;49:2999-3005.
- Zuckerman RB, Sheingold SH, Epstein AM. The Hospital Readmissions Reduction Program. N Engl J Med 2016;375:494.
- Vahidy FS, Donnelly JP, McCullough LD, et al. Nationwide Estimates of 30-Day Readmission in Patients With Ischemic Stroke. Stroke 2017;48:1386-8.
- Rao A, Barrow E, Vuik S, et al. Systematic Review of Hospital Readmissions in Stroke Patients. Stroke Res Treat 2016;2016:9325368.
- 9. Zhong W, Geng N, Wang P, et al. Prevalence, causes and

# Deng et al. Meta-analysis of risk factors for readmission of stroke

risk factors of hospital readmissions after acute stroke and transient ischemic attack: a systematic review and metaanalysis. Neurol Sci 2016;37:1195-202.

- Lichtman JH, Leifheit-Limson EC, Jones SB, et al. Predictors of hospital readmission after stroke: a systematic review. Stroke 2010;41:2525-33.
- Wen TC, Liu BY, Zhang YN. Risk factors for unplanned readmission in ischemic stroke survivors within 31 days: a random forest algorithm research. Chinese Journal of Evidence-Based Medicine 2019;19:532-8.
- Crispo JAG, Thibault DP, Fortin Y, et al. Association between medication-related adverse events and nonelective readmission in acute ischemic stroke. BMC Neurol 2018;18:192.
- Fehnel CR, Lee Y, Wendell LC, et al. Post-Acute Care Data for Predicting Readmission After Ischemic Stroke: A Nationwide Cohort Analysis Using the Minimum Data Set. J Am Heart Assoc 2015;4:e002145.
- Hung LC, Sung SF, Hu YH. A Machine Learning Approach to Predicting Readmission or Mortality in Patients Hospitalized for Stroke or Transient Ischemic Attack. Applied Sciences-Basel 2020;10:6337.
- Yousufuddin M, Bartley AC, Alsawas M, et al. Impact of Multiple Chronic Conditions in Patients Hospitalized with Stroke and Transient Ischemic Attack. J Stroke Cerebrovasc Dis 2017;26:1239-48.
- Zhong WB. The risk evaluation of readmission of acute ischemic stroke and transient ischemic attack. Shangdong University, 2017.
- Qureshi AI, Baskett WI, Huang W, et al. Acute Ischemic Stroke and COVID-19: An Analysis of 27 676 Patients. Stroke 2021;52:905-12.
- Lichtman JH, Leifheit-Limson EC, Jones SB, et al. Preventable readmissions within 30 days of ischemic stroke among Medicare beneficiaries. Stroke 2013;44:3429-35.
- Nahab F, Takesaka J, Mailyan E, et al. Avoidable 30day readmissions among patients with stroke and other cerebrovascular disease. Neurohospitalist 2012;2:7-11.
- Lin HJ, Chang WL, Tseng MC. Readmission after stroke in a hospital-based registry: risk, etiologies, and risk factors. Neurology 2011;76:438-43.
- 21. Li HW, Yang MC, Chung KP. Predictors for readmission of acute ischemic stroke in Taiwan. J Formos Med Assoc 2011;110:627-33.
- 22. Bhattacharya P, Khanal D, Madhavan R, et al. Why do ischemic stroke and transient ischemic attack patients get readmitted? J Neurol Sci 2011;307:50-4.
- 23. Burke JF, Skolarus LE, Adelman EE, et al. Influence of

hospital-level practices on readmission after ischemic stroke. Neurology 2014;82:2196-204.

- 24. Lakshminarayan K, Schissel C, Anderson DC, et al. Fiveyear rehospitalization outcomes in a cohort of patients with acute ischemic stroke: Medicare linkage study. Stroke 2011;42:1556-62.
- 25. Thompson MP, Zhao X, Bekelis K, et al. Regional Variation in 30-Day Ischemic Stroke Outcomes for Medicare Beneficiaries Treated in Get With The Guidelines-Stroke Hospitals. Circ Cardiovasc Qual Outcomes 2017;10:e003604.
- 26. Allen A, Barron T, Mo A, et al. Impact of Neurological Follow-Up on Early Hospital Readmission Rates for Acute Ischemic Stroke. Neurohospitalist 2017;7:127-31.
- Suri MF, Qureshi AI. Readmission within 1 month of discharge among patients with acute ischemic stroke: results of the University HealthSystem Consortium Stroke Benchmarking study. J Vasc Interv Neurol 2013;6:47-51.
- Qiu X, Xue X, Xu R, et al. Predictors, causes and outcome of 30-day readmission among acute ischemic stroke. Neurol Res 2021;43:9-14.
- 29. Nouh AM, McCormick L, Modak J, et al. High Mortality among 30-Day Readmission after Stroke: Predictors and Etiologies of Readmission. Front Neurol 2017;8:632.
- Mittal MK, Rabinstein AA, Mandrekar J, et al. A population-based study for 30-d hospital readmissions after acute ischemic stroke. Int J Neurosci 2017;127:305-13.
- Elgendy IY, Omer MA, Kennedy KF, et al. 30-Day Readmissions After Endovascular Thrombectomy for Acute Ischemic Stroke. JACC Cardiovasc Interv 2018;11:2414-24.
- 32. Terman SW, Reeves MJ, Skolarus LE, et al. Association Between Early Outpatient Visits and Readmissions After Ischemic Stroke. Circ Cardiovasc Qual Outcomes 2018;11:e004024.
- Han KT, Kim SJ, Jang SI, et al. Positive correlation between care given by specialists and registered nurses and improved outcomes for stroke patients. J Neurol Sci 2015;353:137-42.
- Khanevski AN, Bjerkreim AT, Novotny V, et al. Thirtyday recurrence after ischemic stroke or TIA. Brain Behav 2018;8:e01108.
- 35. Kilkenny MF, Longworth M, Pollack M, et al. Factors associated with 28-day hospital readmission after stroke in Australia. Stroke 2013;44:2260-8.
- 36. Lee SA, Park EC, Shin J, et al. Patient and hospital factors associated with 30-day unplanned readmission in patients

with stroke. J Investig Med 2019;67:52-8.

- Hirayama A, Goto T, Faridi MK, et al. Age-related differences in the rate and diagnosis of 30-day readmission after hospitalization for acute ischemic stroke. Int J Stroke 2018;13:717-24.
- Shah SV, Corado C, Bergman D, et al. Impact of Poststroke Medical Complications on 30-Day Readmission Rate. J Stroke Cerebrovasc Dis 2015;24:1969-77.
- 39. Jin P, Matos Diaz I, Stein L, et al. Intermediate risk of

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cardiac events and recurrent stroke after stroke admission in young adults. Int J Stroke 2018;13:576-84.

- Andrews AW, Li D, Freburger JK. Association of Rehabilitation Intensity for Stroke and Risk of Hospital Readmission. Phys Ther 2015;95:1660-7.
- Lekoubou A, Bishu KG, Ovbiagele B. Influence of a Comorbid Diagnosis of Seizure on 30-Day Readmission Rates Following Hospitalization for an Index Stroke. J Stroke Cerebrovasc Dis 2020;29:104479.