

Quantitative Synthesis

Quantitative Synthesis displays the results of a nest's [Meta-Analytical Extraction \(previously named Extraction\)](#). Use this page to drill down on the outcomes of your research by Intervention or by study (**Summary** page), to see the distribution of results across individual studies (**Distribution** page), or view inferential statistics and forest plots for comparisons within your nest (**NMA** page).



Video

1. Navigate to Quantitative Synthesis

From the Nest menu, click on “Synthesis” in the left hand menu.

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Objective
Determine whether endovascular thrombectomy in patients presenting with acute basilar artery ischemic stroke results in better functional and angiographic outcomes than medical therapy alone

Scope
Clinical trials or prospective studies designed at evaluating clinical outcomes (functional and imaging) in basilar stroke patients undergoing endovascular thrombectomy or medical therapy for acute basilar artery ischemic stroke

Population
Patients presenting with acute basilar ischemic stroke within 12 hours of symptom onset

Primary Outcomes
• Good functional outcome, defined as mRS 0-3

Secondary Outcomes
• Functional independence (mRS 0-2) at 90 days
• Rate of TICI 2b/3 recanalization
• Rate of early neurological improvement (NIHSS improvement of >8 or NIHSS 0/1 at 24 hours)
• All-cause mortality
• Occurrence of symptomatic ICH
• Occurrence of distal emboli post-procedure
• Onset-to-needle time
• Onset to puncture time

Notes Your Mentions All Mentions
No comments yet- use this space to discuss your nest in general and ask questions of your team!

Then, from Synthesis Home, click on the “Quantitative Synthesis” section.

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Synthesis: Basilar Artery - thrombectomy vs. thrombolysis

Abstract

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Background
Endovascular thrombectomy (EVT) is an effective treatment for acute ischemic stroke attributable to the anterior circulation large-vessel occlusion. Randomized trials of patients with posterior circulation large-vessel occlusion (PC-LVO) have failed to show a benefit of EVT over medical therapy (MEDT). We performed a systematic review and meta-analysis to understand better whether EVT is beneficial for PC-LVO.

Methods
Using the Nested Knowledge AutoLit living review platform, we identified randomized control trials and prospective studies that reported functional outcomes in patients with PC-LVO treated with EVT versus MEDT. The primary outcome variable was 90-day modified Rankin scale score of 0 to 3, and secondary outcome variables included 90-day modified Rankin scale score of 0 to 2, 90-day mortality, and rate of symptomatic intracranial hemorrhage. A separate random effects model was fit for each outcome measure to calculate pooled odds ratios.

Results
Three studies with 1248 patients, 860 in the EVT arm and 388 in the MEDT arm, were included in the meta-analysis. The favorable outcome rate (modified Rankin scale score of 0-3) in patients undergoing EVT was 39.9% (95% CI, 30.6%-50.1%) versus 24.5% in patients undergoing MEDT (95% CI, 9.6%-49.8%). Patients undergoing EVT had higher modified Rankin scale score of 0 to 2 rates (31.8% [95% CI, 25.7%-38.5%] versus 19.7% [95% CI, 7.4%-42.7%]) and lower mortality (42.1% [95% CI, 35.9%-48.6%] versus 52.8% [95% CI, 33.3%-71.5%]) compared with patients undergoing MEDT, but neither result was statistically significant. Patients undergoing EVT were more likely to develop symptomatic intracranial hemorrhage (odds ratio, 10.36; 95% CI, 3.92-27.40).

Conclusions
EVT treatment of PC-LVO trended toward superior functional outcomes and reduced mortality compared with MEDT despite a trend toward increased symptomatic intracranial hemorrhage in patients undergoing EVT. Existing randomized and prospective studies are insufficiently powered to demonstrate a benefit of EVT over MEDT in patients with PC-LVO.

Study Information:
PMD: N/A
DOI: 10.1161/soin.121.000147

Key Insights:

Evidence quality difference? Registry vs. RCTs does not impact findings

View in Context

Two included studies were RCTs, while the third (the BASILAR study) reported a prospective registry. While mortality was much higher in this registry for

2. Explore Summary

In the top-middle of the page “Summary” is automatically selected:

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Quantitative Synthesis: Thrombectomy alone vs. Thrombectomy plus thrombolysis

Summary Distribution NMA

Fixed Effects Random Effects

Intervention	Outcome			Outcome			Outcome		
	TICI 2b/3			mRS 0-2			Mortality		
	(n/N)	%	[CI]	(n/N)	%	[CI]	(n/N)	%	[CI]
Interventions	1334/1599	84.4%	[81.0%, 87.3%]	747/1633	48.2%	[42.1%, 54.5%]	276/1633	16.5%	[14.0%, 19.4%]
▶ Mechanical thrombectomy	648/796	82.8%	[77.3%, 87.1%]	376/817	49.2%	[39.2%, 59.3%]	142/817	16.7%	[12.7%, 21.6%]
▶ Mechanical thrombectomy plus IVT	686/803	85.9%	[81.7%, 89.2%]	371/816	47.5%	[38.5%, 56.6%]	134/816	16.1%	[12.6%, 20.2%]

Default Summary View

In the Default View:

- In the left column, **Interventions** are displayed down to the second level (that is, the nodes below the Root Node selected as Interventions).
- In the other 3 columns, **Data Elements** are displayed, and the most commonly-reported Data Elements are shown by default. In the cells below, results are broken down into:
 - For **Dichotomous variables**, the event rate (n), total population (N), percentage (see *Random/Fixed Effects*), and a 95% Confidence Interval.
 - For **Continuous variables**, the mean/median, standard deviation (SD)/range/interquartile range (IQR), and a 95% Confidence Interval.
 - For **Categorical variables**, the event rate (n) for each category, as well as the total population (N) upon hovering.

Note: All Data Elements are classified as Baseline or Outcome during timepoint selection. The Data Element classification is displayed above each column upon selection.

From this Default View, you can manipulate the Interventions, Data Elements, and even statistic type to drill down on findings.

Random vs. Fixed Effects

- **Random/Fixed Effects:** Across all Quantitative Synthesis pages, estimates and percentages displayed by Default are actually Random Effects calculations. To toggle to Fixed Effects (that is, an estimate based on an assumption of [constancy or non-randomness](#)), use the toggle in the upper right of the table.

Expand Interventions

Click on an Intervention of interest to expand down to see its children. This can be done recursively, meaning that if your top-level Interventions have multiple layers below them, each click will expand the next level down.

View Individual Underlying Studies

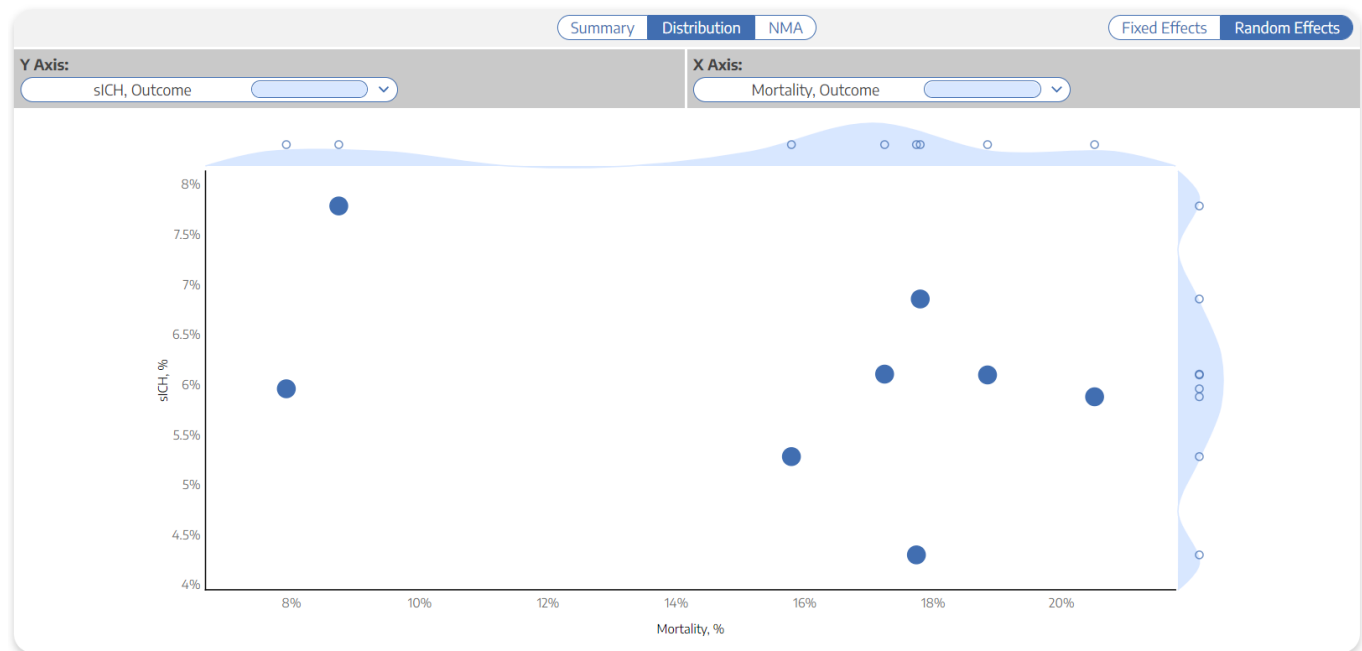
If there are no levels below a given Intervention, clicking on it will display the underlying studies and their associated Data Elements.

Choose Data Elements / Columns

To choose different Data Elements, click on the drop-down at the top of a column, view the list of all Data Elements (with a bar that represents *data density*, or the rate at which it was reported across studies), and select the Data Element of interest.

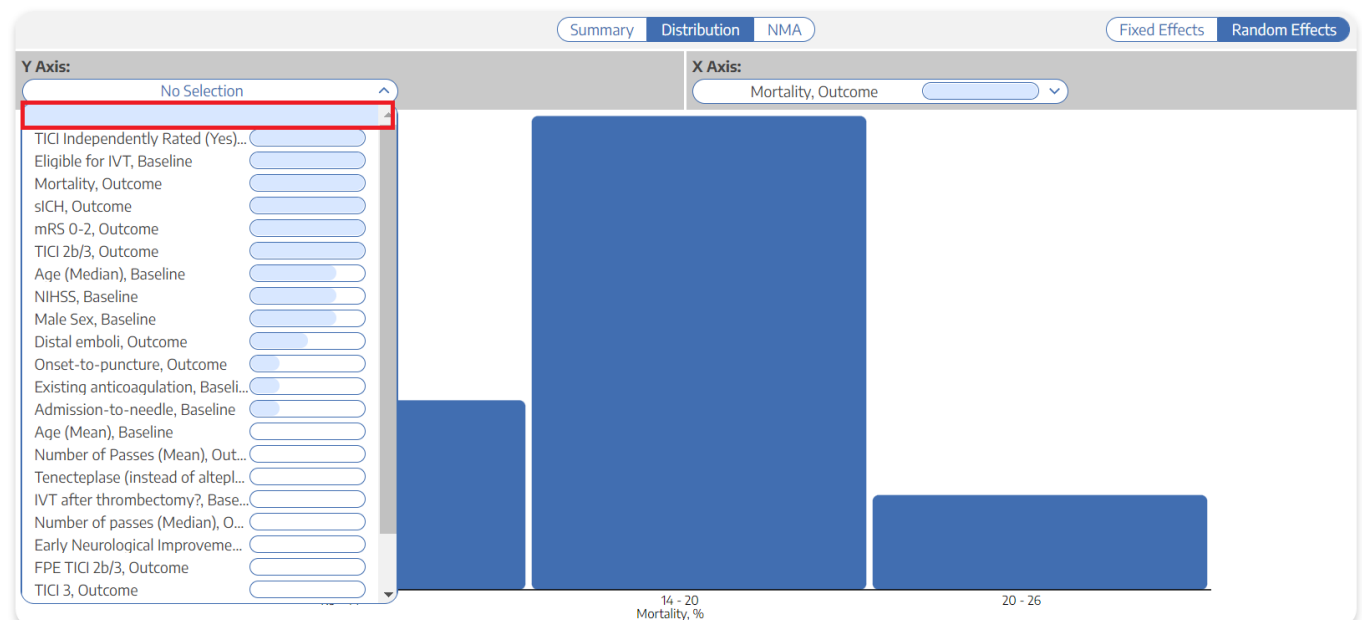
3. Explore Scatter Plot

In the top-middle of the page “Distribution” is highlighted. This page shows statistical relationships between Interventions and tags such as “slCH” and “Mortality” in a scatterplot formation.



In this page, select the X and Y axes to designate the Data Elements of interest. This will generate a chart that shows the distribution of studies based on their rate of each Data Element. Furthermore, hovering over any node in the Distribution page will show you the study the node represents, and clicking on it will open a study modal showing the abstract, data, tags, and search history of that study.

Histogram view: To view a histogram of findings for a single data element, go to the Y Axis selector, and click on the first option, which looks like a blank field. This will generate a histogram showing the distribution of findings across studies with respect to one, not two, data elements.



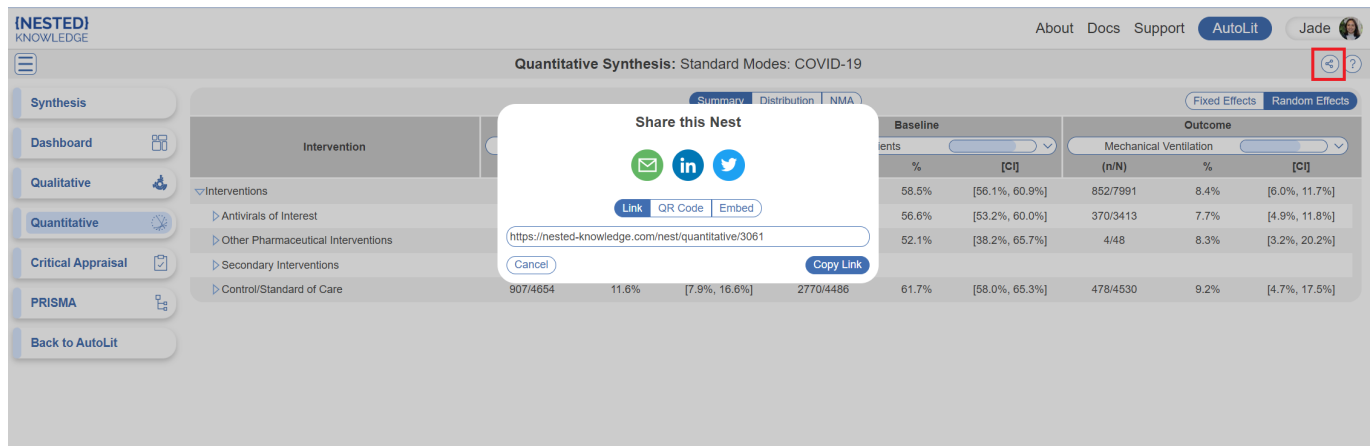
4. Explore NMA

To navigate to the Network Meta-analysis (NMA), in the top-middle of the page, click "NMA".

To explore the functions of NMA, see the [Explore NMA page](#).

5. Share or Embed

Similar to QLS, you can share any of the Quantitative Synthesis pages by clicking on the share icon in the top right. You have the choice of sharing via a link or downloading a QR code.



If your nest is public (see Settings to do so) you will also have the option to embed QLS into a webpage. Simply copy the HTML code and paste it into your site of choice.

Note: unlike in QLS, in QNS, there is no option to download a spreadsheet of filtered studies from Synthesis. Only nest users can access this data in Study Inspector -> Download -> MA Extraction.

Calculation Methods for Quantitative Synthesis

To see how statistics are calculated for Quantitative Synthesis, including for the NMA, see [here](#).

Reorder or Hide Tags

Since the order of dropdown options reflects the order of tags in the tagging hierarchy, you may wish to reorder these tags. See instructions on [how to Reorder Tags](#).

If you wish to hide tags in Synthesis, [see instructions here](#). Tags will only be hidden in Synthesis and will still be present in AutoLit.

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