# Case-based vs lecture-based learning for ischemic stroke education: a randomized controlled trial in Argentine medical students

Submission date	Recruitment status  No longer recruiting	[X] Prospectively registered		
31/07/2025		☐ Protocol		
Registration date	Overall study status	Statistical analysis plan		
01/09/2025	Ongoing  Condition category	Results		
Last Edited		Individual participant data		
02/09/2025	Other	[X] Record updated in last year		

#### Plain English summary of protocol

Background and study aims

Teaching medical students how to handle ischemic stroke—a serious condition where blood flow to the brain stops—is extremely important. Traditional lessons (called lecture-based learning or LBL) are common, but there is a different method called case-based learning (CBL) that uses real-life examples to help students learn. This study aims to compare CBL and LBL in medicine students to see how it improves their knowledge, practical skills, and enjoyment of learning about acute ischemic stroke. The goal is to find the best way to teach this important topic.

#### Who can participate?

Students in their 4th year of medical school at the Universidad Nacional del Nordeste (UNNE) in Argentina, aged 19-27, who are taking a neurology course and agree to join. Only volunteers who attend regular lectures can take part, and those retaking the course cannot join.

#### What does the study involve?

Students will be picked randomly into two groups of 45. One group will have two 45 minutes CBL sessions (90 minutes total), and the other will have a 90 minutes LBL session. We'll test their knowledge with a 50-items multiple-choice questionnaire (MCQ) before, right after, and 6 months later. We'll also check their clinical skills with an observed skills clinical examination (OSCE) after the class and ask them to fill out a short survey (5-point Likert scale) about their satisfaction with the learning method.

#### What are the possible benefits and risks of participating?

There's no big benefit right away for students other than increasing their knowledge about cerebrovascular disease, but the results can lead to changes in the teaching model for better learning outcomes for future students and greater stroke awareness. There are no serious risks; everything happens during regular university courses, and the tests don't affect their grades.

Where is the study run from?

The study is run by Rodrigo Agustín Palma Pérez, an independent researcher, and takes place partly at the Faculty of Medicine of niversidad Nacional del Nordeste (UNNE) and partly at the Hospital Escuela José Francisco de San Martín in Corrientes, Argentina.

When is the study starting and how long is it expected to run for? The study will start in September 2025 and is expected to run until March 2026.

Who is funding the study? The study is self-funded by the researcher, with no outside money

Who is the main contact? Rodrigo Agustín Palma Pérez, agustin3456@gmail.com

## Contact information

#### Type(s)

Public, Scientific, Principal investigator

#### Contact name

Mr Rodrigo Agustín Palma Pérez

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#### Contact details

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## Additional identifiers

Clinical Trials Information System (CTIS)

Nil known

ClinicalTrials.gov (NCT)

Nil known

Protocol serial number

1e

## Study information

#### Scientific Title

Case-based vs lecture-based learning for ischemic stroke education: a randomized controlled trial in Argentine medical students

#### **Acronym**

**CL-EDUCAT** 

#### **Study objectives**

#### Primary objective:

To test whether case-based learning (CBL) improves the acquisition of knowledge about acute ischemic stroke (AIS) compared to lecture-based learning (LBL) in fourth-year medical students, measured by multiple-choice questionnaire (MCQ) scores.

#### Secondary objectives:

- 1. To determine whether differences in the acquisition of theoretical knowledge about AIS persist in the long term in fourth-year medical students, assessed by MCQ scores at 6 months between CBL and LBL.
- 2. To evaluate whether there are differences in the development of clinical skills for AIS management in fourth-year medical students between CBL and LBL, measured by Objective Structured Clinical Examination (OSCE) scores.
- 3. To analyze whether there are differences in the satisfaction of fourth-year medical students with the AIS learning experience between CBL and LBL, assessed by scores on a 5-point Likert scale survey.

#### Ethics approval required

Ethics approval required

#### Ethics approval(s)

submitted 23/07/2025, UNNE/Hospital Escuela (Moreno 1250, Corrientes, 3400, Argentina; +54 (0)3794422290; cbi@med.unne.edu.ar), ref: 1

#### Study design

Single-centre randomized single-blind controlled trial

#### Primary study design

Interventional

#### Study type(s)

Other

#### Health condition(s) or problem(s) studied

Medical education

#### Interventions

Participants (90 4th-year medical students) are randomized into two groups (CBL and LBL, 45 per group) using a computer-generated random number sequence. Allocation is concealed using sealed envelopes opened by an independent coordinator not involved in the intervention or assessment.

CBL (Experimental): 90 minutes (total) interactive case-based learning sessions on ischemic stroke

LBL (Active Comparator): 90 minutes (total) traditional lecture-based session on ischemic stroke.

#### Intervention Type

Other

#### Primary outcome(s)

Acquisition of knowledge measured using a 50-item multiple-choice questionnaire (MCQ) at 1 week post-intervention

#### Key secondary outcome(s))

- 1. Retention of knowledge measured using a 50-item multiple-choice questionnaire (MCQ) at 6 months
- 2. Development of clinical skills measured using Observed Skills Clinical Examination (OSCE) at 1 week post-intervention
- 3. Student satisfaction with teaching method measured using a 5-point Likert scale survey at 1 week post-intervention

#### Completion date

31/03/2026

# **Eligibility**

#### Key inclusion criteria

- 1. 4th-year medical students at Universidad Nacional del Nordeste (UNNE)
- 2. Enrolled in Neurology
- 3. Willing to participate

#### Participant type(s)

Learner/student

#### Healthy volunteers allowed

No

#### Age group

Adult

#### Lower age limit

19 years

#### Upper age limit

27 years

#### Sex

All

#### Key exclusion criteria

Students retaking the course

#### Date of first enrolment

23/09/2025

#### Date of final enrolment

30/09/2025

## **Locations**

#### Countries of recruitment

Argentina

#### Study participating centre Universidad Nacional del Nordeste (UNNE)

Moreno 1240 Corrientes Argentina 3400

#### Study participating centre Hospital Escuela José Francisco de San Martín

Rivadavia 1250 Corrientes Argentina 3400

## Sponsor information

#### Organisation

Hospital Escuela José Francisco de San Martín

### Organisation

Universidad Nacional del Nordeste (UNNE)

# Funder(s)

## Funder type

Other

#### **Funder Name**

Investigator initiated and funded

## **Results and Publications**

## Individual participant data (IPD) sharing plan

The data-sharing plans for the current study are unknown and will be made available at a later date

## IPD sharing plan summary

Data sharing statement to be made available at a later date

## **Study outputs**

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes