

Evolution of Alzheimer's Disease Diagnosis and Clinical Trial Enrollment in South America (2016–2026)

Viviana Messick

VMM Clinical · Park City, UT, USA | Director of Clinical Operations, Microvascular Therapeutics

B BACKGROUND

South America is experiencing one of the **fastest-growing rates of Alzheimer's Disease (AD) globally**, yet remains chronically underrepresented in the global clinical trial landscape.

8.5M+

People with dementia in LatAm

74%

Global AD trials excluding LatAm

4×

Faster aging vs. Europe

56%

LatAm cases preventable*

* Modifiable risk factors could prevent 56% of LatAm dementia cases (vs. 40% globally). **Highest prevalence: Argentina, Chile, Uruguay (GBD 2019)**. Incidence ranges from 18.2/1,000 (Peru) to 30.4/1,000 (Mexico) person-years in adults 65+.

🕒 Critical Diagnostic Delay — Peru 2025 Data

A 2025 case series of 45 Early-Onset AD patients at INCN Lima found **2–5 year delay between symptom onset and diagnosis**. Mean MMSE at diagnosis: 13.2 (moderate-severe stage). Executive dysfunction present in 97.8% of patients. 73% female cohort. (*Castro-Suárez et al., Alzheimer's & Dementia 2025*)

Sources: Sosa et al. Alzheimer's Dement. 2024; GBD 2019; Castro-Suárez et al. Alzheimer's Dement. 2025; International Psychogeriatrics 2024

M METHODS

Retrospective Analysis · Longitudinal Health Data · 2016–2026

- Data Aggregation**
Longitudinal diagnostic trend data from major South American metropolitan and rural hubs consolidated across a ten-year window (2016–2026), stratified by country and urban/rural classification.
- Registry Cross-Reference**
Diagnostic trends cross-referenced with ClinicalTrials.gov and regional registries (ANVISA/Brazil, INVIMA/Colombia, DIGEMID/Peru) to quantify AD-specific trials and enrolled participants.
- Correlation Analysis**
Pearson correlation coefficients calculated to measure the relationship between rising AD diagnosis prevalence and clinical research ecosystem capacity. Urban vs. rural disparities modeled separately.
- Geographic Gap Quantification**
Enrollment data stratified by country, site type, and sub-region to identify where infrastructure gaps are most acute. Country-level prevalence tiers mapped against site density.
- Modifiable Risk Factor Analysis**
Country-level attributable fraction for modifiable dementia risk factors (education, hypertension, physical inactivity, diabetes) calculated and compared to global benchmarks.

Study Limitations & Strengths

Limitations

- Retrospective design; registry figures may undercount rural populations.
- ClinicalTrials.gov may not fully capture locally-registered studies.
- Correlation analysis cannot establish causality.

Strengths

- First 10-year systematic analysis correlating AD diagnosis trends with trial enrollment capacity across South America.
- Multi-registry approach covers ANVISA, INVIMA, and DIGEMID beyond ClinicalTrials.gov.
- Directly informs AI-enhanced recruitment model design with real-world infrastructure data.

R RESULTS

Preliminary data reveal a **significant upward trend in AD diagnoses** across South America, driven by aging populations and improved diagnostic criteria. However, clinical trial enrollment has **failed to scale proportionally**, revealing a widening research gap.

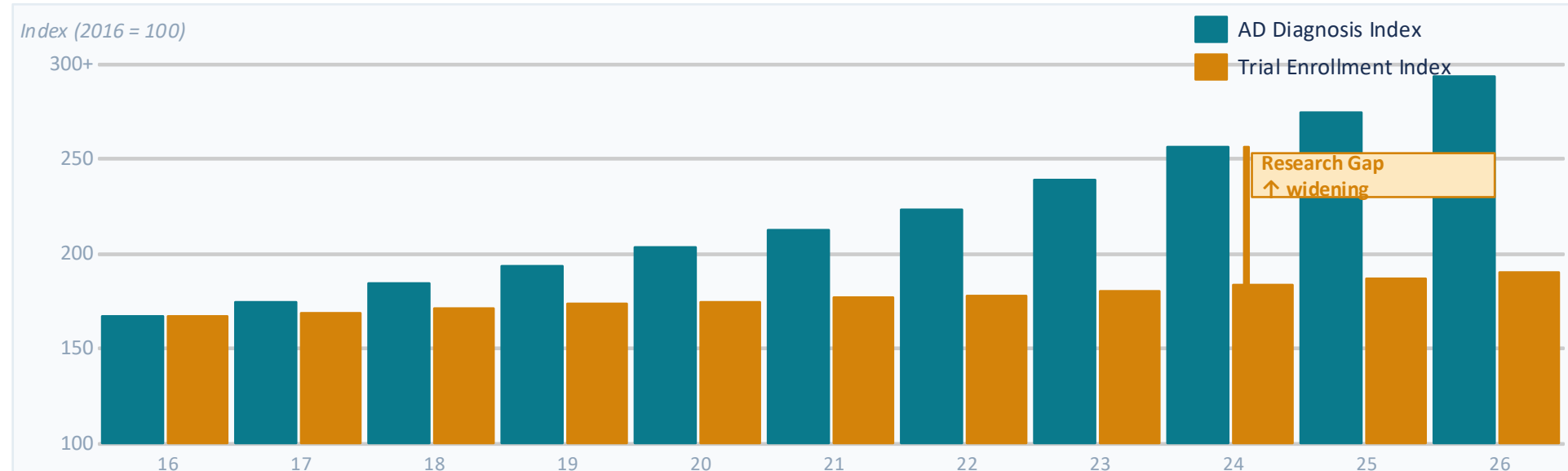


Figure 2. Geographic AD Prevalence & Trial Representation by Sub-Region

Sub-Region / Country	AD Prevalence Profile	Clinical Trial Access	Status
Argentina / Chile / Uruguay	Highest (oldest populations in LatAm)	Limited — few specialized sites outside Buenos Aires / Santiago	HIGH
Brazil (São Paulo, Manaus, Porto Alegre)	High urban; rural up to 5× higher (low education)	Most trial activity in LatAm — still only 4.5% global share	MED
Colombia / Venezuela	Moderate-high; rural severely underserved	Very limited; Bogotá only	MED
Peru (Lima vs. Andean/Amazon)	Lowest incidence (18.2/1,000) — but 2–5yr diagnosis delay	Near absent outside Lima; IMPACT Salud active (4 regions)	GAP
Bolivia / Ecuador / Paraguay	Data scarce; rural >2× urban estimated	Virtually no trial infrastructure	CRITICAL

Sources: GBD 2019; Sosa et al. 2024; Castro-Suárez et al. 2025; IMPACT Salud 2023-2025; Custodio et al. 2024

Key Findings

- Rising diagnoses, stagnant enrollment:** AD diagnoses grew ~190% while trial enrollment grew only ~35% over the same period (2016–2026).
- Infrastructure deficit:** Insufficient specialized sites outside Buenos Aires, São Paulo, Lima, Bogotá. 4.5% of global AD RD trials in LatAm.
- 2–5 year diagnostic delay:** Peru EOAD cohort (INCN Lima, n=45) arrived at diagnosis in moderate-severe stage (MMSE 13.2). Delay negates trial eligibility.
- Geographic barriers & rural gap:** Rural/illiterate populations face 2× prevalence but near-zero trial access. Bolivia, Ecuador, Paraguay have virtually no site infrastructure.

Future Directions

Phase 2: Expanded Multi-Country Registry

Scale analysis to Bolivia, Ecuador, Paraguay, Venezuela — nations with near-zero trial infrastructure. Partner with national health ministries for data sharing.

AI Screening Tool Prospective Validation

Validate the proposed mobile AI interface across 3 South American sites — building on IMPACT Salud CHW methodology. Target: Q1 2027 pilot.

Neurologist Network Consortium (RuralLink)

Establish a regional consortium for remote neurologist pre-qualification, integrating with LatAm-FINGERS infrastructure across 12 countries.

C CONCLUSIONS & PROPOSED INNOVATION

The findings demonstrate a critical need for **specialized clinical research site expansion** throughout South America. Traditional recruitment methods are fundamentally insufficient to capture the growing diagnosed population.

Diagnosis ≠ Trial Participation

A widening gap exists between growing AD diagnoses in South America and the capacity to screen, enroll, and retain these patients in clinical trials.

Scale Requires Technology + Policy

Manual, site-based recruitment cannot scale to meet the speed, volume, or geographic spread of the growing LatAm AD population.

ACTIVE REGIONAL RESEARCH — 2024–2026

PERU	IMPACT Salud — Peru (Active 2023–2025) UK NIHR-funded 4-year program developing and validating an mHealth dementia screening platform with Community Health Workers (CHWs) across 4 Peruvian regions: Lima, Tumbes, Iquitos, Huancayo. Phase II: ~32,000 older adults (60+) screened using AD8, RUDAS-PE & PFAQ. Gold-standard validation subsample n=600. CHW 2-week training completed. Health system assessment: 156 stakeholder interviews across 4 regions. Direct precedent for the proposed AI model. (Anza-Ramírez et al. 2025; Lazo-Porras et al. 2025)
12 COUNTRIES	LatAm-FINGERS — 12 Countries (Active 2021–) First non-pharmacological multicenter RCT to prevent cognitive impairment in LatAm. 1,549 screened, 815 randomized across Argentina, Brazil, Chile, Colombia, Bolivia, Costa Rica, Ecuador, Mexico, Uruguay, Dominican Republic, Puerto Rico — and Peru (Instituto Peruano de Neurociencias). Uses harmonized neuroimaging with ADNI. Proves multicountry LatAm clinical trial feasibility. (Crivelli et al. Alzheimer's Dement. 2025)
MULTI-SITE	ReDLat & PARDoS — Biomarkers + Neuropathology ReDLat: Multi-partner consortium developing neurodegeneration biomarkers across Argentina, Brazil, Chile, Colombia, Mexico, Peru using harmonized neuroimaging. PARDoS (Brazil): 4,790+ decedents enrolled in neuropathology study across 3 São Paulo sites by Feb 2025 — largest neuropathological dementia cohort in LatAm. 40.2% Black/Mixed race. (Custodio et al. 2024; PARDoS medRxiv 2025)

AI PROPOSED AI-ENHANCED MODEL

Bridging the Research Gap Through Decentralized AI Screening

Building on IMPACT Salud CHW methodology and LatAm-FINGERS multicountry infrastructure, we propose:

- Mobile Physician Interface**
Local physicians enter primary memory loss symptoms into a specialized mobile app — no specialist referral required. Proven feasible by IMPACT Salud CHW deployment across 4 Peruvian regions.
- AI Intelligence Layer**
Symptom data analyzed by an AI engine trained on validated AD screening criteria (AD8, RUDAS-PE). High-probability candidates flagged automatically for neurologist review.
- Neurologist Pre-Qualification**
Neurologists review AI-flagged candidates remotely — modeled on LatAm-FINGERS telemedicine approach — confirming eligibility for formal site-based enrollment.

Key Advantage: Captures the unique genetic admixture and socioeconomic diversity of South America — translating regional