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Barriers, limitations, and challenges to the implementation of artificial intelligence in Latin American healthcare systems: a scoping review

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Online Resource 2. Database search strategies

Database (interface)	Date searched	Records (pre-dedup)
PubMed/MEDLINE — PubMed (U.S. National Library of Medicine)	3 June 2026 (re-executed 3 September 2026, entry-date cap 3 June 2026)	184
Scopus — Scopus (Elsevier)	3 June 2026	454
Web of Science — Web of Science Core Collection (Clarivate)	3 June 2026	363
Embase — Embase (Elsevier)	3 June 2026	962
LILACS (via BVS / Virtual Health Library) — Biblioteca Virtual en Salud (BVS/VHL) interface, LILACS database	3 June 2026	779
Total		**2,742**

1. PubMed/MEDLINE

Interface / platform	PubMed (U.S. National Library of Medicine)
Search fields	MeSH terms [Mesh]; title/abstract [tiab]; date of publication [dp]; language [lang]
Date last run	3 June 2026; re-executed 3 September 2026 with an Entrez entry-date cap at 3 June 2026
Date & language limits	Dates and languages embedded in the query (2016/01/01–2026/12/31; English, Portuguese, Spanish).; entry date ("2016/01/01"[edat] : "2026/06/03"[edat])
Records retrieved	184 (the 22 recorded at first submission was a truncated export)

Search string as executed on 3 September 2026, restricted by Entrez entry date to records that had entered PubMed by the search date of 3 June 2026 (184 records). The string differs from the one run on 3 June 2026 only by the final entry-date clause; the export retained from 3 June 2026 was found during the post-review audit to be truncated at 22 records, and this re-execution reproduces the result set as it stood on the search date. Eleven records entering PubMed after 3 June 2026 were set aside unscreened.

((("Artificial Intelligence"[Mesh] OR "Machine Learning"[Mesh] OR "Deep Learning"[Mesh] OR "Natural Language Processing"[Mesh] OR "artificial intelligence"[tiab] OR "machine learning"[tiab] OR "deep learning"[tiab] OR "generative ai"[tiab] OR "large language model"[tiab] OR "large language models"[tiab] OR "natural language processing"[tiab] OR "computer vision"[tiab] OR "clinical decision support"[tiab] OR "predictive analytics"[tiab])AND(implement*[tiab] OR adopt*[tiab] OR integrat*[tiab] OR deploy*[tiab] OR uptake[tiab] OR scalability[tiab] OR diffusion[tiab] OR "digital transformation"[tiab] OR "technological transformation"[tiab])AND(barrier*[tiab] OR limitation*[tiab] OR challenge*[tiab] OR obstacle*[tiab] OR bottleneck*[tiab] OR governance[tiab] OR regulation[tiab] OR interoperab*[tiab] OR ethic*[tiab] OR bias[tiab] OR trust[tiab] OR infrastructure[tiab] OR cost*[tiab] OR privacy[tiab] OR security[tiab] OR transparency[tiab] OR explainability[tiab] OR equity[tiab] OR "data quality"[tiab])AND("Health Services"[Mesh] OR "Delivery of Health Care"[Mesh] OR healthcare[tiab] OR "health care"[tiab] OR hospital*[tiab] OR clinic*[tiab] OR "health system"[tiab] OR "health systems"[tiab] OR "medical care"[tiab])AND("Latin America"[Mesh] OR "Latin America"[tiab] OR "Latin American"[tiab] OR "South America"[tiab] OR "Central America"[tiab] OR Caribbean[tiab] OR Mexico[tiab] OR Colombia[tiab] OR Brazil[tiab] OR Argentina[tiab] OR Chile[tiab] OR Peru[tiab] OR Ecuador[tiab] OR Uruguay[tiab] OR Paraguay[tiab] OR Bolivia[tiab] OR "Costa Rica"[tiab] OR Panama[tiab] OR Guatemala[tiab] OR Honduras[tiab] OR "El Salvador"[tiab] OR Nicaragua[tiab] OR Venezuela[tiab] OR Cuba[tiab] OR "Dominican Republic"[tiab]))AND ("2016/01/01"[dp] : "2026/12/31"[dp])AND (english[lang] OR portuguese[lang] OR spanish[lang])AND ("2016/01/01"[edat] : "2026/06/03"[edat])

2. Scopus

Interface / platform	Scopus (Elsevier)
Search fields	TITLE-ABS-KEY (title, abstract, keywords). Bilingual (English + Spanish) free-text terms.
Date last run	3 June 2026
Date & language limits	PUBYEAR > 2015 (2016 onward); languages restricted to English, Spanish, Portuguese via LIMIT-TO(LANGUAGE).
Records retrieved	454

Search string:

TITLE-ABS-KEY(("artificial intelligence" OR "machine learning" OR "deep learning" OR "generative ai" OR "clinical decision support" OR "predictive analytics" OR "inteligencia artificial" OR "aprendizaje automático" OR "aprendizaje de máquina" OR "aprendizaje profundo")
AND
(implement* OR adopt* OR integrat* OR deploy* OR uptake OR "scale-up" OR diffusion OR "digital transformation" OR "technological transformation" OR "health technology implementation" OR implementación OR adopción OR integración OR despliegue OR escalamiento OR "transformación digital" OR "transformación tecnológica")
AND
(barrier* OR limitation* OR challenge* OR obstacle* OR bottleneck* OR governance OR regulation OR

interoperab* OR ethic* OR bias OR trust OR infrastructure OR cost* OR barrera* OR limitacion* OR limitación* OR desafío* OR reto* OR obstáculo* OR gobernanza OR regulación OR interoperabilidad OR ética OR sesgo* OR confianza OR infraestructura OR costo*)
AND
(healthcare OR "health care" OR health OR hospital* OR clinic* OR "health system*" OR salud OR clínic* OR "sistema* de salud")
AND
("Latin America" OR "South America" OR "Central America" OR "Latin American" OR Mexico OR Colombia OR Brazil OR Brasil OR Argentina OR Chile OR Peru OR Perú OR Ecuador OR Uruguay OR Paraguay OR Bolivia OR
"Costa Rica" OR Panama OR Panamá OR Guatemala OR Honduras OR "El Salvador" OR Nicaragua OR Venezuela OR Cuba OR "Dominican Republic" OR "República Dominicana"))
AND PUBYEAR > 2015
AND (LIMIT-TO(LANGUAGE, "English") OR LIMIT-TO(LANGUAGE, "Spanish") OR LIMIT-TO(LANGUAGE, "Portuguese"))

3. Web of Science

Interface / platform	Web of Science Core Collection (Clarivate)
Search fields	TS = Topic (title, abstract, author keywords, Keywords Plus).
Date last run	3 June 2026
Date & language limits	Publication timespan 2016–2026 and languages English/Spanish/Portuguese applied through the database Refine panel (not encoded in the query string above).
Records retrieved	363

Search string:

TS=(("artificial intelligence" OR "machine learning" OR "deep learning" OR "generative ai" OR "large language model" OR "large language models" OR "natural language processing" OR "computer vision" OR "clinical decision support" OR "predictive analytics")
AND
(implement* OR adopt* OR integrat* OR deploy* OR uptake OR "scale up" OR "scale-up" OR scalability OR diffusion OR "digital transformation" OR "technological transformation")
AND
(barrier* OR limitation* OR challenge* OR obstacle* OR bottleneck* OR governance OR regulation OR interoperab* OR ethic* OR bias OR trust OR infrastructure OR cost* OR privacy OR security OR transparency OR explainability OR equity OR "data quality")
AND
(healthcare OR "health care" OR hospital* OR clinic* OR "health system" OR "health systems" OR "medical care")
AND
("Latin America" OR "Latin American" OR "South America" OR "Central America" OR Caribbean OR Mexico OR Colombia OR Brazil OR Argentina OR Chile OR Peru OR Ecuador OR Uruguay OR Paraguay OR Bolivia OR "Costa Rica" OR Panama OR Guatemala OR Honduras OR "El Salvador" OR Nicaragua OR Venezuela OR Cuba OR "Dominican Republic")
)

4. Embase

Interface / platform	Embase (Elsevier)
Search fields	Emtree explosion /exp; title/abstract/keyword :ti,ab,kw; publication year /py; language /lim.
Date last run	3 June 2026
Date & language limits	Dates and languages embedded in the query ([2016-2026]/py; [english]/[spanish]/[portuguese]/lim).
Records retrieved	962

Search string:

('artificial intelligence'/exp OR 'machine learning'/exp OR 'deep learning'/exp OR 'natural language processing'/exp OR 'computer vision'/exp OR 'artificial intelligence':ti,ab,kw OR 'machine learning':ti,ab,kw OR 'deep learning':ti,ab,kw OR 'generative ai':ti,ab,kw OR 'large language model':ti,ab,kw OR 'large language models':ti,ab,kw OR 'natural language processing':ti,ab,kw OR 'computer vision':ti,ab,kw OR 'clinical decision support':ti,ab,kw OR 'predictive analytics':ti,ab,kw)
AND
(implement*:ti,ab,kw OR adopt*:ti,ab,kw OR integrat*:ti,ab,kw OR deploy*:ti,ab,kw OR uptake:ti,ab,kw OR scalability:ti,ab,kw OR diffusion:ti,ab,kw OR 'digital transformation':ti,ab,kw OR 'technological transformation':ti,ab,kw)
AND
(barrier*:ti,ab,kw OR limitation*:ti,ab,kw OR challenge*:ti,ab,kw OR obstacle*:ti,ab,kw OR bottleneck*:ti,ab,kw OR governance:ti,ab,kw OR regulation:ti,ab,kw OR interoperab*:ti,ab,kw OR ethic*:ti,ab,kw OR bias:ti,ab,kw OR trust:ti,ab,kw OR infrastructure:ti,ab,kw OR cost*:ti,ab,kw OR equity:ti,ab,kw OR privacy:ti,ab,kw OR security:ti,ab,kw OR transparency:ti,ab,kw OR explainability:ti,ab,kw OR 'data quality':ti,ab,kw)
AND
(healthcare:ti,ab,kw OR 'health care':ti,ab,kw OR hospital*:ti,ab,kw OR clinic*:ti,ab,kw OR 'health system':ti,ab,kw OR 'health systems':ti,ab,kw OR 'medical care':ti,ab,kw)
AND
('latin america'/exp OR 'latin america':ti,ab,kw OR 'latin american':ti,ab,kw OR 'south america':ti,ab,kw OR 'central america':ti,ab,kw OR caribbean:ti,ab,kw OR mexico:ti,ab,kw OR colombia:ti,ab,kw OR brazil:ti,ab,kw OR argentina:ti,ab,kw OR chile:ti,ab,kw OR peru:ti,ab,kw OR ecuador:ti,ab,kw OR uruguay:ti,ab,kw OR paraguay:ti,ab,kw OR bolivia:ti,ab,kw OR 'costa rica':ti,ab,kw OR panama:ti,ab,kw OR guatemala:ti,ab,kw OR honduras:ti,ab,kw OR 'el salvador':ti,ab,kw OR nicaragua:ti,ab,kw OR venezuela:ti,ab,kw OR cuba:ti,ab,kw OR 'dominican republic':ti,ab,kw OR LMIC:ti,ab,kw OR LMICs:ti,ab,kw OR 'low resource':ti,ab,kw)
AND [2016-2026]/py
AND ([english]/lim OR [spanish]/lim OR [portuguese]/lim)

5. LILACS (via BVS / Virtual Health Library)

Interface / platform	Biblioteca Virtual en Salud (BVS/VHL) interface, LILACS database
Search fields	DeCS/MeSH descriptors mh:; all-fields free text tw:. Bilingual (English + Spanish) terms.
Date last run	3 June 2026
Date & language limits	Publication years 2016–2026 and languages English/Spanish/Portuguese applied through the BVS interface filters (not encoded in the query string above).
Records retrieved	779

Search string:

(mh:("Inteligencia Artificial") OR mh:("Aprendizaje de Máquina") OR mh:("Registros Electrónicos de Salud") OR mh:("Informática Médica") OR tw:("artificial intelligence" OR "machine learning" OR "deep learning" OR "generative ai" OR "clinical decision support" OR "predictive analytics" OR "digital health" OR "health technology" OR "inteligencia artificial" OR "aprendizaje automático" OR "aprendizaje de máquina" OR "aprendizaje profundo" OR "salud digital" OR "tecnología en salud"))
AND
(tw:(implement* OR adopt* OR integrat* OR deploy* OR uptake OR diffusion OR "scale-up" OR "implementation science" OR "digital transformation" OR "technological transformation" OR "health technology implementation" OR implementación OR adopción OR integración OR despliegue OR escalamiento OR difusión OR "transformación digital" OR "transformación tecnológica"))
AND
(tw:(barrier* OR limitation* OR challenge* OR obstacle* OR bottleneck* OR governance OR regulation OR interoperab* OR ethic* OR "infrastructure" OR "algorithmic bias" OR "trustworthiness" OR cost* OR barrera* OR limitacion* OR limitación* OR desafío* OR reto* OR obstáculo* OR gobernanza OR regulación OR interoperabilidad OR ética OR infraestructura OR sesgo* OR costo*))
AND
(mh:("Servicios de Salud") OR mh:("Hospitales") OR mh:("Sistemas de Salud") OR tw:(healthcare OR "health care" OR hospital* OR clinic* OR "health system*" OR salud OR clínic* OR hospital* OR "sistema* de salud"))
AND
(tw:("Latin America" OR "South America" OR "Central America" OR "Latin American" OR Mexico OR Colombia OR Brazil OR Brasil OR Argentina OR Chile OR Peru OR Perú OR Ecuador OR Uruguay OR Paraguay OR Bolivia OR "Costa Rica" OR Panama OR Panamá OR Guatemala OR Honduras OR "El Salvador" OR Nicaragua OR Venezuela OR Cuba OR "Dominican Republic" OR "República Dominicana"))