

Clinical Lab Intelligence

EDITION 035 | October 5, 2026

BEYOND THE REFERENCE RANGE | FIVE DISTINCT BRIEFS



Read the evidence behind the genetic or immunologic answer

Five briefs cover AI design, shared model errors, AMA-M2 testing, ClinVar review status, and gene-specific criteria.

Reading key: Findings report the source; practical implications are BRR editorial interpretation. Resource spotlights identify useful existing references. Each item includes its own limitation.

Core developments and resources

01 Define the genetics assistant before testing its answers

JMIR Human Factors | 2026-09-30 | Research update | [SOURCE](#)

Finding. Two workshops with 18 interdisciplinary stakeholders in Germany explored an AI assistant for people with BRCA1/2 variants. Participants identified needs around expert oversight, bounded authority, sensitive communication, privacy, and accountability before system development.

Why it matters. Counselors and laboratory educators can translate broad AI governance principles into explicit requirements before testing a patient-facing system.

Limits. No deployed assistant, diagnostic accuracy, counseling outcome, or clinical benefit was evaluated. Purposive recruitment, predominantly expert participation, and the German setting limit transfer.

02 Several AI models can agree on the same wrong answer

Frontiers in Medicine | 2026-09-15 | Research update | [SOURCE](#)

Finding. Five models answered 100 genetics questions in English and Turkish, generating 1,000 responses. Overall scored accuracy was 97.7%, yet several models sometimes selected the same wrong option. Agreement among systems did not guarantee a correct answer.

Why it matters. A review exercise should verify answer content independently rather than use agreement among AI systems as its reference standard.

Limits. Multiple-choice responses are not validation of genetic counseling, variant classification, or clinical risk estimation. Single administrations, limited topics, and binary scoring restrict interpretation.

03 AMA-M2 performance depends on the comparison population

Laboratory Medicine | 2026-09-16 | Research | [SOURCE](#)

Finding. A retrospective comparison included 164 patients with primary biliary cholangitis and 403 with other liver diseases. AMA-M2 chemiluminescence testing had 84.1% sensitivity and 90.1% specificity, with strong agreement with the M2-3E line immunoassay in this cohort.

Why it matters. Disease controls are more informative for this question than a comparison with healthy volunteers alone. Both missed disease and positive results in other liver disorders belong beside a headline accuracy figure.

Limits. This is a selected retrospective cohort, not a general screening population. The results do not establish a stand-alone diagnosis or interchangeability across all assays.

Core developments and resources - continued

04 ClinVar stars describe review support, not a diagnostic guarantee

NCBI ClinVar | Current resource; checked 2026-10-07 | Resource spotlight | [SOURCE](#)

Resource. ClinVar explains how review status reflects submitted classification criteria, expert-panel or guideline review, and, for some classification types, agreement between submitters. Germline/oncogenicity and somatic clinical-impact aggregation use different rules.

Why it matters. Read the classification type and contributing evidence alongside the star display. This supports a source-reading exercise in which learners distinguish a reviewed assertion from an unsupported or conflicting submission.

Limits. The stars are not a probability that a patient has a disorder. They do not remove the need to assess the variant, disease, evidence date, and clinical context. This is documentation spotlighting an existing resource, not a newly proven classification.

05 Gene-specific criteria need a version and approval status

ClinGen | Current resource; checked 2026-10-07 | Resource spotlight | [SOURCE](#)

Resource. ClinGen's registry provides criteria specifications used by Variant Curation Expert Panels and biocurators. Entries distinguish the gene and disease, specification version, and release status; in-preparation material can appear alongside released specifications.

Why it matters. A citation to an interpretation framework should identify the applicable gene/disease and exact approved version. The registry gives educators a concrete way to teach that source-selection step before evaluating a variant argument.

Limits. A listed draft is not an approved specification, and criteria for one gene or condition should not be silently applied to another. The registry resource does not by itself classify an individual variant.

Progressive Research Updates

Building on Edition 006 (2026-09-06). Adds stakeholder-derived design requirements to September's discussion of laboratory genetic counselors governing AI. It operationalizes the governance question without showing that an assistant is safe. [Earlier issue](#) | [Earlier primary source](#).

Building on Edition 006 (2026-09-06). Adds empirical evidence about shared errors to the prior genetics-AI governance question, complementing the design study without validating a clinical assistant. [Earlier issue](#) | [Earlier primary source](#).

Clinical Laboratory World resources

Related teaching pages: [Laboratory Manager Resources](#). The source-linked implementation proposals remain pending qualified review. These newsletter summaries do not approve a method, reporting threshold, or clinical workflow change.

One question for the next team discussion

Use an invented variant discussion to compare three evidence sources: an AI answer, a database assertion, and an approved gene-specific criterion. What kind of review supports each, and what remains uncertain? No fictional exercise should be presented as a real patient classification.

Teaching prompt: original fictional scenario. It does not describe real specimens, patients, or implementation results.

References, disclosures, and access

The numbered references match the five briefs. Dates distinguish paper publication from a current-resource check; an existing resource is not presented as newly published research.

1. Dominic Lammert; Jacqueline Lammert; Justin Hofenbitzer; Tristan Radtke; et al.. [Conversational AI in Hereditary Cancer Care: Sociotechnical Study of Responsible Design Requirements](#). JMIR Human Factors. 2026-09-30. DOI: [10.2196/97869](#).

Evidence/access: Peer-reviewed exploratory participatory-design study; open access. Primary source reviewed.

Disclosure: No external funding was reported. Jacqueline Lammert disclosed honoraria from AstraZeneca Germany and Novartis Germany.

2. Özge Beyza Gündoğdu Öğütlü; Benjamin D. Solomon; Yusuf Selman Çelik. [Benchmarking five large language models in medical genetics: a bilingual comparative evaluation using published and novel expert-authored questions](#). Frontiers in Medicine. 2026-09-15. DOI: [10.3389/fmed.2026.1938886](#).

Evidence/access: Peer-reviewed exploratory multiple-choice benchmark; open access. Primary source reviewed.

Disclosure: An author received NIH intramural salary support and disclosed royalties from the book supplying published questions; the paper states that author did not select items, score outputs, or analyze results.

3. Yujiao Jin; Ying Wang; Aifang Xu; Miaochan Wang; Kenv Pan. [Assessment of a chemiluminescence immunoassay for antimitochondrial antibody subtype M2 in the diagnosis of primary biliary cholangitis](#). Laboratory Medicine. 2026-09-16. DOI: [10.1093/labmed/lmaq063](#).

Evidence/access: Peer-reviewed retrospective diagnostic study. Publisher/author abstract reviewed; full text access limited.

Disclosure: PubMed lists support from the Hangzhou biomedicine and health-industry program; full-text competing interests were not verified.

4. NCBI ClinVar. [Review status in ClinVar](#). NCBI ClinVar. Current resource; checked 2026-10-07.

Evidence/access: Official/professional resource, not a new research study. Current resource page reviewed.

Disclosure: Official or professional-body resource; no new intervention effect is claimed.

5. ClinGen. [ClinGen Criteria Specification Registry](#). ClinGen. Current resource; checked 2026-10-07.

Evidence/access: Official/professional resource, not a new research study. Current resource page reviewed.

Disclosure: Official or professional-body resource; no new intervention effect is claimed.

How to read this issue

A concise research summary does not establish a new laboratory policy. The finding, study design, population, comparator, limitations, and relevant financial relationships should be considered together. Where access was limited, this issue states the review boundary instead of inferring missing details.

The five main items use distinct sources. The Progressive Research Updates section supplies historical links and the specific added question; it does not count the same paper as an extra finding. Earlier issue numbers and publication dates have been preserved.

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