NARRATIVE REVIEW

Radiology reports and patient understanding

Plain-language communication, health literacy and the implications for patient-centred care

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KEY FINDINGS

43%

of working-age adults in England have **low health literacy**

Rowlands et al., 2015

87%

more **understandable**: lay rating of LLM-simplified vs. original reports

Alabed et al., 2026

+10%

comprehension accuracy with **AI plain-language** reports

Chen et al., 2025

CAVEAT

1 in 100

LLM-simplified reports held a **clinically significant error**

Alabed et al., 2026

01 Background

Radiology reports are the predominant output of diagnostic imaging, yet they are written for clinical audiences and commonly contain technical terminology that many patients struggle to interpret. Since the **2023 NHS mandate** allowing patients to access their hospital records via the NHS App, patients increasingly read their own imaging reports directly, often before clinician discussion. Low health literacy disproportionately affects those of lower socioeconomic backgrounds, older patients, and those for whom English is a second language. Poor comprehension often causes **unnecessary anxiety** about results and, at times, an erosion of trust in clinical communication.

02 Methods

A narrative review was performed using available evidence from **PubMed, NHS England and the Royal College of Radiologists.** Studies were included where they assessed patient comprehension of radiology reports, evaluated interventions improving accessibility, or explored workforce awareness of communication barriers.

03 Results

The evidence collated demonstrates a consistent and meaningful **comprehension gap**. A 2026 *Lancet* systematic review and meta-analysis of 38 studies showed lay people rated LLM-simplified reports as 87% more understandable than original radiologist reports, with clinicians rating them highly for accuracy in tandem (Alabed et al., 2026). A US study found AI-generated plain-language reports improved comprehension accuracy by 10%, with gains most profound in adults over 44 without higher education (Chen et al., 2025). However, 1 in 100 LLM-simplified reports contained a clinically significant error potentially altering interpretation (Alabed et al., 2026). The evidence base is well founded, but the **methodology of implementation remains immature**.

04 Conclusions & Implications

Addressing it means embedding plain-language digital technologies within radiology workflows, coupled with multiprofessional education that enables clinicians, nurses and patient-facing staff to recognise this communication gap. With patients now able to access their records more easily than ever, this review highlights the need for workforce education and a **scalable, evidence-based solution** to these inequities.

THE THROUGH-LINE



THE TAKEAWAY

> Accessible radiology communication is both a patient-safety and a health-equity issue.

REFERENCES

Alabed S, Anderson A, Maiter A, et al., 2026. Large language models for simplifying radiology reports: a systematic review and meta-analysis of patient, public, and clinician evaluations. *The Lancet Digital Health.*

Chen AH, Rudin RS, Levine DM, Mehrotra A, 2025. Improving patient understanding of radiology reports using generative AI: a vignette study of 2,000 US adults. *JAMIA.*

Rowlands G, et al., 2015. A mismatch between population health literacy and the complexity of health information: an observational study. *Br J Gen Pract;* 65(635):e379–e386.