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Rapid Evidence Synthesis: The impact of health literacy-informed services and care delivery on hospital performance outcomes

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Rapid Evidence Synthesis:

Rapid Evidence Syntheses (RES) are produced by the National Institute for Health and Care Research (NIHR) Applied Research Collaboration for Greater Manchester (ARC-GM). The methods used are based on a framework set out in Norman et al. 2022 and previously registered on the Open Science Framework (OSF). [1,2]

RES use evidence synthesis approaches and draws on the GRADE Evidence to Decision framework[3] to provide rapid assessments of the existing evidence and its relevance to specific decision problems. In the first instance, they focus on evidence from guidance and existing evidence syntheses. They are undertaken in a real-time context of decision-making around adoption of innovative health technologies and are designed to provide a "good-enough" answer to inform decision problems in a short timescale. RES methods are flexible and adaptive. They have evolved in response to user feedback and differ depending on the nature of the assessment undertaken.

RES is not intended to serve as a substitute for a full systematic review.

We welcome feedback and are particularly interested to hear how you have used this Rapid Evidence Synthesis.

Please send any queries or comments to:

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Additional information:

This work was undertaken by the National Institute for Health Research (NIHR) Applied Research Collaboration for Greater Manchester (ARC-GM). The views expressed are those of the author(s) and not necessarily those of the NIHR or the Department of Health and Social Care.

[1] Norman, G. *Rapid evidence synthesis to support health system decision making. OSF registration.* 2020 [cited 2023]; Available from: osf.io/hsxk5

[2] Norman, G., et al., *Rapid Evidence Synthesis To Enable Innovation And Adoption in Health and Social Care.* Systematic Reviews, 2022. **11**: p. 250. https://doi.org/10.1186/s13643-022-02106-z

[3] Alonso-Coello, P., et al., *GRADE Evidence to Decision (EtD) frameworks: a systematic and transparent approach to making well informed healthcare choices. 1: Introduction.* BMJ, 2016. **353**: p. i2016.

1. Summary

There is a **little** evidence on the impact of health literacy-informed services and care delivery on hospital performance outcomes and **no** evidence on mortality. Where available, the evidence is generally **directly relevant** to the UK context, but has **some uncertainties**.

Evidence with **some uncertainties** appears to favour the use of:

- **pictograms (visual aids)** among caregivers to help reduce the risk of medication administration errors.
- **health literacy-focused interventions used to improve treatment adherence and self-management** to decrease emergency department visits and hospitalisations among populations with low literacy.
- **educational videos as an approach to delivering information for people with diabetes** to help reduce acute hospital admissions.
- **self-management programmes** focusing on medication used with **heart failure** patients with low health literacy to lower hospitalisation rates and emergency department visits.
- **culturally and literacy-adapted audio/visual education for immigrants** to reduce children's emergency department visits.

However, evidence remains **unclear** on the impact of:

- **health literacy champions within health and care organisations** on emergency department length of stay, discharge duration, or 30-day revisit rates.
- **health literacy interventions focusing on asthma self-management** on unscheduled care utilisation among people with asthma.
- **pregnancy-focused health literacy interventions** on health service utilisation in prenatal care settings.

2. Methods

2.1 Description of the Intervention

The World Health Organization defines health literacy as "*the personal characteristics and social resources needed for individuals and communities to access, understand, appraise and use information and services to make decisions about health*"[1]. There is a drive to use health literacy-informed approaches in the delivery of health and care to enhance access to and uptake of relevant information, particularly among service users with low-level health literacy skills (who are often those from disadvantaged communities)[2]. The potential performance benefits for organisations in delivering health-literacy-informed services could include improvements in Did-Not-Attend (DNA) rates, reduced service readmissions and delayed discharges, reductions in health inequities, and improved health outcomes of service users.

2.2 Key Questions

Q1. What does current research evidence tell us about the effectiveness of health literacy-informed services and care delivery in improving hospital performance outcomes and reducing mortality—both in general and specifically among disadvantaged populations accessing these services?

2.3 Search

We searched Medline (Ovid) and the Cochrane Database of Systematic Reviews in October 2025. Our searches were based on the facets of health literacy, and systematic reviews. The search strategy combined terms used in existing systematic reviews on health literacy approaches[3-5]. The search strategies used are available on request.

2.4 Inclusion Criteria

2.4.1 Participants

We included evidence relating to people of all ages who were receiving care in hospitals in the UK and other high-income countries. When evidence was limited or unavailable, we included research from primary and community care settings but consider this indirectly relevant to the RES questions.

2.4.2 Interventions

We included studies of any health literacy approach or intervention used to help people to '*navigate, understand, and use information and services to take care of their health'[6].* That is, we focused on research in which health and care organisations were clearly implementing health-literacy-informed approaches to enable people to access and use information and services, rather than improving individuals' health literacy skills per se. Where we were unsure whether this criterion was met, we included the evidence but considered it indirectly relevant.

2.4.3 Comparators

We considered any comparator as eligible, including no intervention and alternative interventions.

2.4.4 Outcomes

We considered the following outcomes:

- Hospital performance outcomes in relation to the access and utilisation of health care services, particularly DNA rates, completion rates of diagnostic pathways, rates of service readmissions and delayed discharges, the rate of avoidable emergency department attendances, length of stay, and measurable health inequity outcomes.
- Hospital-level mortality.

We excluded outcomes that measured (or are related to) service user-reported accessibility and readability of materials, and individuals' health literacy.

2.4.5 Study design

In the first instance, we considered existing evidence syntheses for this RES, focusing on systematic, rapid, and scoping reviews of primary quantitative studies. We used a broad definition of systematic reviews, which includes applications of a systematic search and clear inclusion criteria. We did not include primary studies in this RES.

We focused only on evidence from the UK and other high-income countries for this RES.

In summarising the evidence identified, we followed the GRADE approach to categorising the certainty of evidence into four levels:

- ***high*** certainty, indicating we are confident that the research findings reflect a true effect;
- ***moderate*** certainty, indicating we are fairly confident that the findings reflect a true effect;

- ***low*** certainty, indicating we have limited confidence in the findings, and more research is likely to change them;
- ***very low*** certainty, indicating there are no clear findings.

We followed general GRADE criteria in assessing the certainty of evidence without performing a full GRADE assessment.

3. Results

3.1 Results of search

We identified 912 records from database searches including an overview of reviews [7] plus seven additional systematic reviews[8-14].

3.2 Health literacy approaches used in hospitals

The overview of reviews [7] and six additional reviews [8, 10-14] report relevant evidence. Overall, they report **little** research evidence on the impact of health literacy interventions on organisational performance outcomes, and **none** on mortality. Where evidence is available, it tends to be **inconsistent** across different types of interventions, populations or care settings. The key findings from these reviews are summarised below by intervention types:

3.2.1 Pictograms (visual aids) as a health literacy strategy

An overview of reviews, Larrotta-Castillo et al. (2023), focused on health literacy interventions implemented in hospitals and synthesised evidence on their impact on health outcomes and care processes.[7] The interventions consisted of single or multi-faceted health literacy strategies, including: brochures, visual aids, digital tools, multimedia resources (e.g., videos), and group and personalised counselling sessions. Among these strategies, Larrotta-Castillo et al. (2023) found only **little** and **low-certainty evidence** supporting the use of pictograms (visual aids) in improving organisational performance. This low certainty evidence suggests that caregivers who used visual aids made fewer errors in medication dosing and administration, with a relative risk reduction of at least 50%[7].

3.2.2 Health literacy champions

Ayre et al. (2023) systematically reviewed evidence on the implementation of health literacy champions within health and care organisations[8]. They identified **only one** quasi-experimental study, conducted in a U.S. emergency department. The evidence is **directly relevant** to the UK context, but we considered the study design used **suboptimal**. Ayre et al. suggested that the use of health literacy champions to enhance asthma education did not result in any change in the length of stay in emergency departments, discharge duration, or 30-day revisit rates[8].

3.2.3 Interventions that focused on health literacy to improve adherence and self-management

Two reviews report relevant evidence on hospital performance outcomes[10, 12], with Salim et al. (2020) specifically focusing on asthma self-management [12]. Berkman et al. (2011) evaluated a range of health literacy interventions targeting populations with low health literacy, including patient education, adherence promotion, and self-management interventions.[10]

Both reviews report some evidence on hospital performance outcomes but **no** evidence on mortality. Berkman et al. identified evidence from five RCTs and one quasi-experimental study on health service utilisation outcomes, which they rated as **moderate-certainty**[12]. They suggested that adherence and self-management interventions designed for people with low health literacy probably reduce emergency department visits and hospitalisations. Salim et al. (2020) found **unclear** evidence on the impact of health literacy interventions, addressing asthma self-management, on unscheduled care utilisation, as all three included trials were at **high risk of bias** and reported **inconsistent** results[12].

The evidence from Salim et al. (2020) is **directly relevant** to the context of this RES. However, we were unable to comment on the relevance of the evidence from Berkman et al. (2011) due to the under-reporting of contextual information in their review. Note that adherence and self-management interventions used in both reviews appear to align more closely with 'individual' health literacy than 'organisational' health literacy.

3.2.4 Diabetes-focused educational videos

Hoe et al. (2024) synthesised evidence on the use of educational videos for people with diabetes[11]. They identified two **good-quality** RCTs that examined the impact of these videos on hospital admission rates, both **consistently** suggesting a reduction in acute hospital admissions following the intervention[11]. The evidence is from high-income countries and is **directly relevant** to the UK context.

3.2.5 Medication-related health literacy interventions

Evidence is **limited** for this group of interventions. Wali et al. (2015) is the only review reporting the relevant evidence among populations with low health literacy[12]. The interventions evaluated were related to: written information; visual information; verbal information; label/medication bottle; reminder systems; and educational programmes and services[12]. The review identified only two randomised controlled trials (RCTs) – both of **good quality** – that reported on organisational

performance outcomes. Evidence suggests that people with low literacy who attended heart failure self-management programmes aimed at improving medication use experienced fewer hospitalisations and fewer visits to the emergency department than those receiving usual care. However, the available information is insufficient for us to judge the relevance of this evidence to the UK context.

3.2.6 Pregnancy-focused health literacy interventions

Zibellini et al. (2021) reviewed randomised trial evidence on health literacy interventions related to pregnancy[14], and found **inconsistent** evidence on health-service utilisation. Three Australian randomised trials reported no difference in health service utilisation between decision-aid interventions and control groups in the prenatal care setting (**moderate-certainty evidence**). A UK-based randomised trial evaluating a touchscreen information system for prenatal tests, in addition to information leaflets, found an increase in health service utilisation (**moderate-certainty evidence**). This evidence is **directly relevant** to the UK context.

3.3 Health literacy approaches used among in disadvantaged populations

As the only review on this topic, Baumeister et al. (2023) focused on the impact of health literacy interventions for migrants[9]. This is a Cochrane Review of only one RCT (157 participants) that assessed children's emergency department visits immediately and within three months following the use of culturally and literacy-adapted audiovisual education in general paediatric clinics in the USA[9]. The review presents **moderate**-certainty evidence that audio-visual education probably reduces children's emergency department visits within three months, compared with no intervention.[9] The evidence is **directly relevant** to the UK context.

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