What is the effectiveness of population health management in improving health delivery, health outcomes and reducing inequalities? A Rapid Review

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EXECUTIVE SUMMARY

What is a Rapid Review?

Rapid Reviews abbreviate or omit some components of the systematic review approach to generate the evidence to inform stakeholders promptly whilst maintaining attention to bias.

Who is this Rapid Review for?

The research question was submitted by Betsi Cadwaladr University Health Board (BCUHB) to inform its strategic direction for reducing health inequalities and prioritise those with the greatest health and wellbeing needs. It seeks to inform a whole systems approach to prevention and early intervention that the Health Board and their regional partners will adopt from 2026/27 onwards.

Background / Aim of Rapid Review

Population health management (PHM) is an approach that aims to improve health and reduce health inequalities by data-informed planning and delivery of proactive care. It uses linked datasets to identify local 'at risk' populations which are then targeted with personalised interventions that deliver proactive and proportionate care. The approach is gaining pace across parts of the UK and in Wales where many exemplary practices have been implemented, such as the work undertaken in the Cwm Taf Morgannwg area. BCUHB is exploring PHM approaches to improve health and wellbeing, and experiences of people living in North Wales and reduce inequalities. It is important to understand whether PHM approaches can improve these outcomes. The aim of this rapid review is to identify the effectiveness of PHM in improving healthcare delivery, health outcomes and reducing inequalities.

Results of the Rapid Review

Recency of the evidence base

- The review included evidence available until the end of September 2025. Included studies were published between 2018 and 2025.

Extent of the evidence base

- Three comparative studies evaluating the effectiveness of a PHM approach in improving health delivery, health outcomes, or reducing inequalities were identified. This included the implementation of prevention focused integrated care models (implemented across two NHS Vanguard sites), a social determinant of health (SDoH) focused care model, and a community-based programme designed to improve care coordination and address clinical and social determinants of health. Four further studies were identified that evaluated the effectiveness of specific interventions targeting high risk groups and were developed using a PHM approach, which included a SDoH screening and referral process using the electronic health record in primary care, food supplementation intervention, person-centred smoking cessation intervention, and clinic-to-community physical activity referral intervention.
- The seven studies included: One pilot randomised controlled trial; three non-randomised control studies, including one pilot; one cohort study; one repeated measures study and one uncontrolled before and after study.
- Included studies were conducted in the USA (n=6) and the UK (n=1).
- All studies were considered low quality with considerable methodological limitations.

Key findings and certainty of the evidence

- The ***prevention focused integrated care models*** led to increased costs of secondary care per patient per year, and costs per user of secondary care and led to mixed findings for emergency

admissions, with no significant differences in primary care utilisation and health-related quality of life using the EQ-5D 5 L index.

- The ***social determinants of health focused care model*** led to reduced emergency department visits, hospital admissions and costs per patient and led to improved health-related quality of life.
- The ***community-based programme designed to improve care coordination and address clinical and social determinants of health***, led to mixed findings in terms of costs and healthcare utilisation varying by medical insurance payer.
- The ***food supplementation intervention*** led to the successful provision of food supplementation, reduced emergency department visits and hospitalisations.
- The ***person-centred smoking cessation intervention*** led to increased quitline engagement, increased treatment engagement and increased abstinence.
- The ***clinic-to-community, physical activity referral intervention*** led to decreased body weight and systolic blood pressure. Those with hypertension were found to have decreased body weight, systolic and diastolic blood pressures. The revenue generated from the model was larger than the cost of scholarship provided to those in need of financial support.
- The ***social determinants of health screening and referral process intervention*** led to increased screening rates, social work referral and more patients accessing the FindHelp.org resources.
- Acceptability and satisfaction with both the models of care and interventions was generally high but integrated care models found no differences in patient perceptions of support.

Policy and Practice Implications

- While the evidence base was limited by a small number of low-quality studies, the findings may inform the development of PHM approach.
- Most PHM approaches were resource intensive, delivered across multiple care settings, involving multiple collaborating partners and a range of personnel to deliver the interventions, so complexity may impact feasibility and implementation of the interventions.
- PHM is a broad approach that can be implemented in various ways and at different levels of the healthcare system, depending on population needs and priorities. However, within the literature the impacts of the different PHM components are poorly reported, making it challenging to determine the effectiveness of PHM overall. Policymakers and practitioners should take this into account when designing interventions using the PHM approach.

Research Implications and Evidence Gaps

- There was a lack of high-quality evidence, particularly UK based. Further research is needed to draw firmer conclusions.
- As the studies were aimed at specific population groups, and were primarily conducted in the USA, this may affect the transferability of the findings, particularly given differences in healthcare systems, patient demographics, and service availability.
- Robust evaluations of the effectiveness of PHM, and its components, should be integrated into development and implementation of PHM.

Economic considerations

- Additional expenditure on public health is more productive than additional National Health Service (NHS) expenditure in terms of quality-adjusted life years (QALYs) generated at the population-level. However, there is a paucity of economic evidence at the PHM-level.
- Economic evaluations of PHM should consider changes in healthcare resource use and associated costs of implementing PHM alongside measures of effectiveness. This is particularly pertinent given high levels of resource intensity required to implement PHM and the variability in PHM components identified by this review.
- Dependent on PHM design, economic evaluations may wish to consider different perspectives, time-horizons or discount rates to reflect and capture important differences in costs or outcomes as per National Institute for Health and Care Excellence (NICE) guidance.