Health Innovation Oxford & Thames Valley

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Lean Assessment Process Methodology for RMD-Health: Evaluating Clinical Need, Usefulness, Adoption Barriers, and Early Economic Value of AI in NHS Rheumatology Referrals

Aims & Objectives

To evaluate the clinical need, perceived usefulness, and potential adoption barriers of RMD-Health, a machine learning-based risk stratification tool designed to differentiate between inflammatory arthritis (IA) and non-inflammatory conditions (NICs) at the point of referral, using the Lean Assessment Process (LAP) methodology.

Methods

The LAP is a structured, resource-efficient framework developed to support early-stage health technology development by aligning evidence generation with stakeholder needs and system priorities. It incorporates human factor tools and stakeholder engagement to identify unmet clinical needs, assess value propositions, and anticipate implementation challenges. The LAP enables rapid, iterative feedback to inform product design, trial planning, and serves as a precursor to early economic modelling. Semi-structured interviews were conducted with NHS clinicians, including GPs, rheumatology consultants, and registrars, across multiple Trusts in England. Thematic analysis was employed to extract insights into clinical utility, feasibility of integration, and evidence requirements. Quantitative data on perceived usefulness and stakeholder influence were also collected using validated tools embedded within the LAP framework. Figure 1 illustrates the flow of the LAP methodology implemented for evaluating RMD-Health.

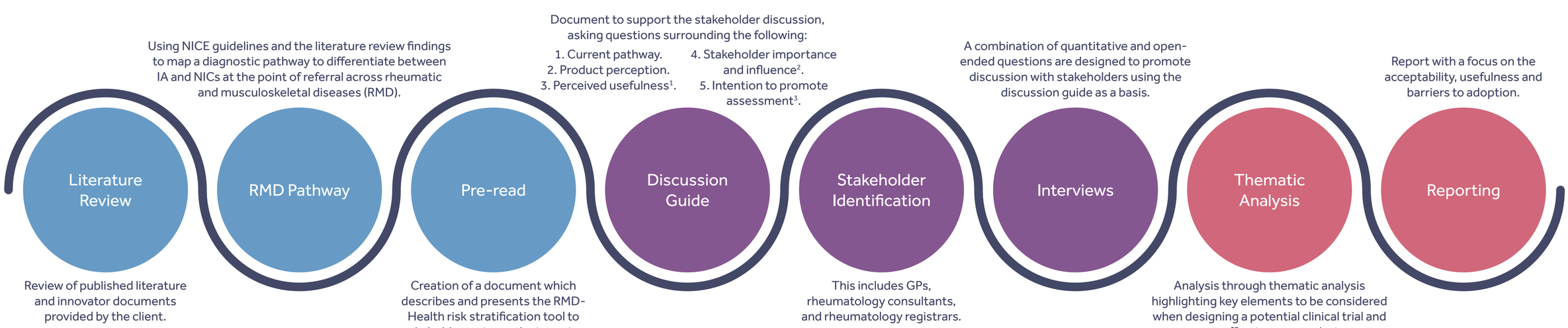

Figure 1: LAP for RMD-Health risk stratification tool.

Results

The study showed that stakeholders were positive about the potential usefulness of RMD-Health, with key benefits including the improvement in the quality and timeliness of referrals, better triaging processes and appropriate healthcare resource utilisation. Conversely, barriers to adoption were highlighted, such as the potential increase in workload for clinicians and the reliability of the outputs was questioned. Stakeholders emphasised the importance of real-world evidence to validate diagnostic accuracy, cost-effectiveness, and usability across diverse NHS settings. The diagrams demonstrate some of the quantitative results provided by the LAP by showing the level of agreement between stakeholders on individual perspectives (Figure 2); the perceived usefulness of the tool across stakeholders (Figure 3) and the intention to promote amongst the stakeholders (Figure 4).

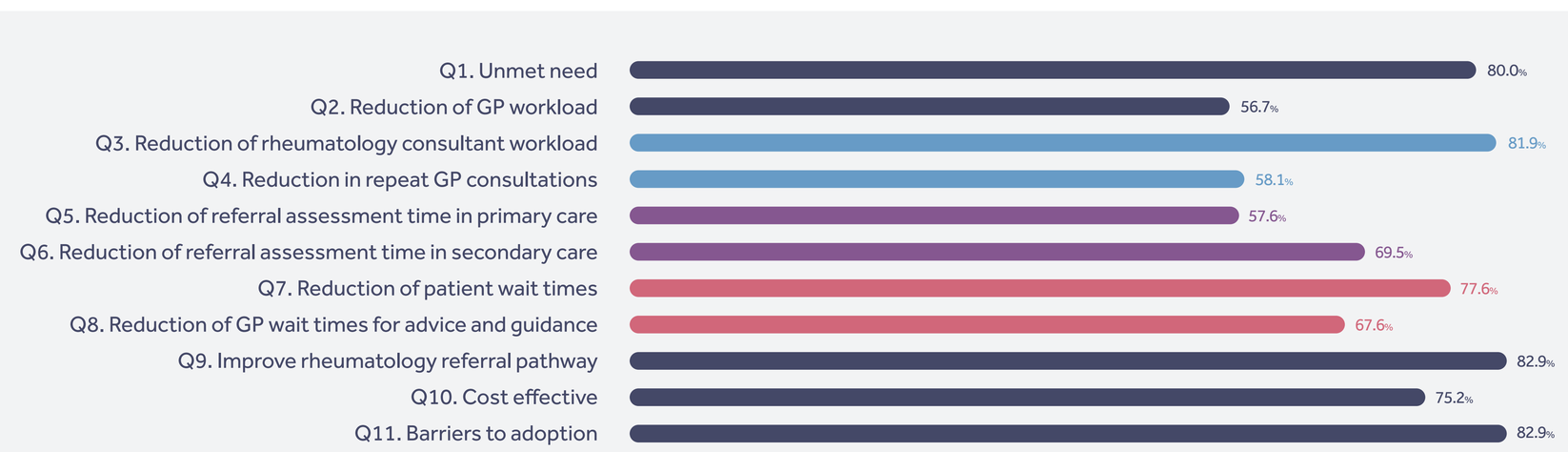

Figure 2: Individual Perspective showing the level of agreement between stakeholders

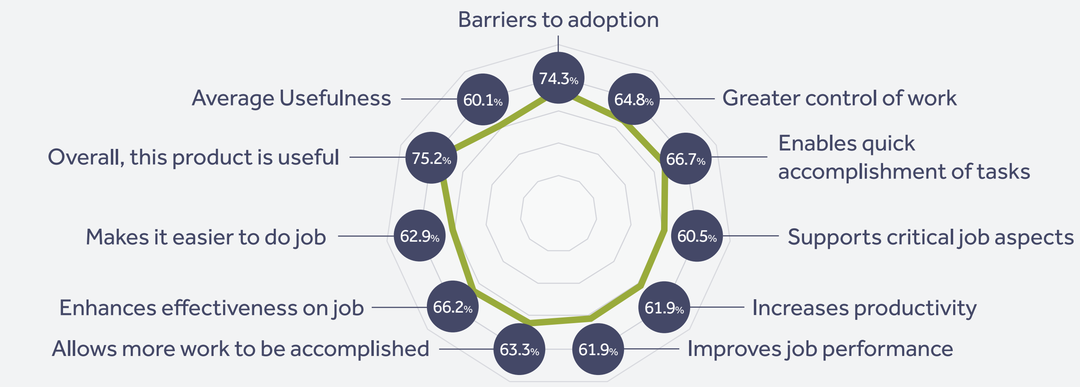

Figure 3: Perceived Usefulness tool showing the stakeholders' view on the usefulness of the technology

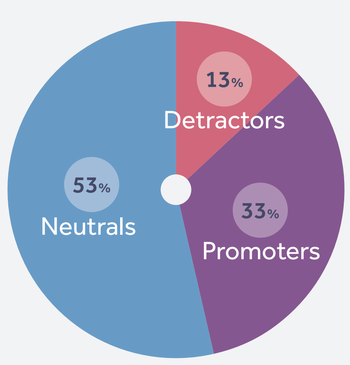

Figure 4: Stakeholders' intention to promote the technology

Conclusion

The LAP methodology provided a structured, stakeholder-informed approach to evaluating RMD-Health's clinical and operational value. Findings support the generation of further evidence, including pilot studies and economic evaluations, to inform NHS commissioning decisions and facilitate adoption into routine care. As a flexible and scalable framework, the LAP proved effective in aligning early evidence generation with real-world clinical priorities and system-level decision-making.

References

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