



Scale, Spread and Embed Patient Experience Tool: informing person-centred health and social care provision

Driving responsive and timely improvements in patient experience using Artificial Intelligence

The feedback that patients provide on the experiences of their health and social care is critical to informing the quality and safety of care provision and services. [1] The Friends and Family Test (FFT) is one opportunity for obtaining patient insights into the experiences of their care. However the human resource and time needed to manually read through, interpret and systematically analyse all patient experience feedback across the health and social care sector prevents incorporating this valuable data source sustainably towards quality improvement (QI). [2] This poses an ethical dilemma for health and social care providers, having solicited the feedback but not being able to use it meaningfully as a rich source of organisational insights to deliver person-centred care. There is a growing emphasis, and policy directive, for care providers to move beyond only analysing response rates for patient experience surveys, but to use patient experience feedback in near-real time for QI initiatives. [3]

Given the large volumes of patient experience data that need to be interpreted, artificial intelligence (AI) and in particular natural language processing (NLP) offers a practical solution to analyse patient narratives in near real-time. [4,5] The Scale, Spread and Embed Patient Experience Tool uses AI to provide near real-time interpretation of patient experience free-text comments and has been developed to embed user insights into a culture of organisational person-centred care delivery.

Driving person-centred quality improvements in the NHS

The Scale, Spread and Embed Patient Experience Tool is:

- An AI (NLP) tool which enables frontline health and social care professionals, quality improvement, and patient experience teams to review large amounts of free-text patient feedback, in near real-time, to identify person-centred service improvements.
- Can be used to process free-text patient feedback in any health and social care service setting, with easy-to-use accompanying software to support retraining of the algorithm for local tailoring and ensure algorithm accuracy.
- Changes the way teams see and react to patient-derived feedback, freeing up their time to implement timely person-centred service improvements, rather than having to manually read through and categorise all the feedback comments.
- Accompanied by an evidence-based real-world tested implementation manual that contains case studies and step-by-step guidance for NHS providers to roll out the algorithm in their local contexts.

Benefits of the Scale, Spread and Embed FFT NLP Tool

Save staff time so patient experience teams can focus on supporting frontline staff quality improvement activities.

Peer-to-peer support from other health and social care organisations that have implemented the solution through national community of practice.

Framework for implementing similar artificial intelligence technologies in health and social care settings to support operational efficiency and service improvements.

[1] Secretary of State for Health ed., 2008. High quality care for all: NHS next stage review final report (Vol. 7432). The Stationery Office.

[2] NIHR Dissemination Centre, 2019. Improving care by using patient feedback: themed review.

[3] Wong, E., Mavondo, F. and Fisher, J., 2020. Patient feedback to improve quality of patient-centred care in public hospitals: a systematic review of the evidence. BMC health services research, 20, pp.1-17.

[4] Khanbhai, M., Anyadi, P., Symons, J., Flott, K., Darzi, A. and Mayer, E., 2021. Applying natural language processing and machine learning techniques to patient experience feedback: a systematic review. BMJ Health & Care Informatics, 28(1).

[5] Khanbhai, M., Warren, L., Symons, J., Flott, K., Harrison-White, S., Manton, D., Darzi, A. and Mayer, E., 2022. Using natural language processing to understand, facilitate and maintain continuity in patient experience across transitions of care. International journal of medical informatics, 157, p.104642.

The development process

The Scale, Spread and Embed Patient Experience Tool uses Natural Language Processing (NLP), a computer science technique and component of AI, to provide thematic and sentiment analysis of the free-text FFT comments using the NHS England Patient Experience Framework. It has been validated by NHS patient experience teams, healthcare professionals, patients, QI teams and Business Intelligence/ ICT data analysts; it analyses 6000 comments in 15 minutes, versus four days if done by a Patient Experience team member.

The tool was developed at Imperial and then further tested across NHS Trusts in England. This included understanding the acceptable threshold for the overall accuracy for theme and sentiment and comprehensively appraising its accuracy in the real-world setting including linguistic nuances, spelling errors, varying patient demographics and diverse healthcare settings, including adult inpatient, primary care, community, paediatrics, and mental health care.

The developed tool is accompanied by additional features that enables health and social care organisations to tailor it to meet their own needs, including:

- Splitting longer free-text comments into sentences for thematic and sentiment analysis.
- Multi-tagging comments with multiple themes and sentiment.
- The option of automating redaction of the comments before being displayed on a dashboard
- Software that enables each organisation to maintain algorithm accuracy longer-term.



National community of practice

We have developed a national implementation manual that distils our experiences and lessons learned as the tool was implemented across the NHS; this is available as an actionable resource for other health and social care providers wishing to implement the tool. We have also convened a multidisciplinary community of practice on the NHS Futures Collaboration Platform to foster continuous exchange of insights and collaborative support as the tool is further spread in the health and social care community.

Having successfully applied the AI tool to increase use of patient feedback in the NHS, we are now working with other health and social care organisations seeking to use this tool to increase operational and corporate efficiencies. Examples include working with clinical research networks to analyse free-text comments from research participants, applying the tool to streamline the review process for clinical guidelines' consultation comments, and analysing hiring managers' candidate assessments in recruitment to evaluate efforts to increase ethnic diversity in senior roles.

The opportunity

To License the Scale, Spread and Embed Patient Experience tool.

LICENSING ENQUIRIES
IMPERIAL COLLEGE LONDON
Email: nhsinfo@imperial.ac.uk

GENERAL ENQUIRIES
Digital Collaboration Space
1A Sheldon Square, W2 6PY
St Mary's Hospital
Email: imperial.dcs@nhs.net