Explaining variation in an HIV testing trial: A new model based on diffusion of innovations theory

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INTRODUCTION

Complex intervention trials may require health care organisations to implement new service models. In the RHIVA 2 trial of rapid HIV testing in primary care some participating organisations achieved high recruitment, whereas others found it difficult to assimilate the intervention and were low recruiters. We sought to explain this variation and develop a model to inform organisational participation in future complex intervention trials.

BACKGROUND

The British HIV Association and the National Institute for Health and Care Excellence both support community-based testing in areas where the prevalence of diagnosed HIV is above 2 per 1000 adult population. The RHIVA 2 trial implemented and evaluated this guidance aiming to determine if testing in this way would lead to earlier and greater diagnosis of HIV. RHIVA 2 ran for 28 months and used the INSTI™ HIV-1/HIV-2 Rapid Antibody Test (sensitivity of 99.8 %).

METHODS

Objective: There was marked variation between the 20 intervention practices in how many rapid HIV tests were offered and accepted. We sought to explore this variation through a retrospective process evaluation.

Data Sources:
• several hundred hours of ethnographic observation
• 21 semi-structured interviews
• analysis of routine documents (e.g., patient leaflets, clinical protocols) and trial documents (e.g., inclusion criteria, recruitment statistics).

Analysis: Qualitative data were analysed thematically using—and, where necessary, extending—Greenhalgh et al. model of diffusion of innovations. Narrative synthesis was used to prepare case studies of four practices representing maximum variation in clinicians’ interest in HIV (assessed by level of serological testing prior to the trial) and performance in the trial (high vs. low recruiters).

THE DIFFUSION OF INNOVATIONS IN HEALTH CARE ORGANISATIONS MODEL

A wide-ranging systematic review of the diffusion, spread and sustainability of innovations in the organisation and delivery of health services identified a number of interacting components.

Figure 1: Greenhalgh et al. Diffusion of innovations in health care organisations model

FINDINGS

Practice A implemented the rapid testing intervention very successfully, offering more tests than any other practice and having a moderate decline rate (42 %). Effective implementation of the test was the result of key system antecedents for innovation, high system readiness for the rapid test, a smooth implementation process and strong adopter factors among front-line staff.

Practice B demonstrated moderate system antecedents and readiness for innovation. It was well organised and had a clear and harmonious differentiation of roles. The lead nurse was personally motivated and professional. She spoke highly of senior doctors and vice versa and detected the most cases of HIV via rapid testing (4/11). The practice had high absorptive capacity for new knowledge and a receptive context for change.

Practice C struggled to implement rapid testing. The practice was slow to offer the first test, and its rate of testing declined low throughout the study (72 rapid tests offered, 50 % declined). System antecedents were low, there was little interest or time for accommodating new innovations. There may also have been an issue about the compatibility of the test with the values of the HCA, who appeared personally uncomfortable testing for HIV.

Practice D also struggled to implement testing. The 557 rapid tests that were offered during the trial period (43 % declined) may appear relatively high, but the size and consistent registration of new patients demonstrated missed opportunities for testing. Data suggests that the innovation was never effectively routinised. Practice D was impeded by a combination of structural, capacity-related and cultural factors (most crucially, limited slack resources), along with individual adopter traits and a weak process of implementation.

SUMMARY OF FINDINGS

Relative advantage and simplicity of the rapid test

Providers found the instant, actionable results of the rapid test as well as its accessibility and convenience advantageous compared to venous testing.

System antecedents for innovation

Larger, more formally organised practices with an appropriate division of roles and slack resources (especially time), as well as those with strong communication networks and good managerial relations, were higher recruiters. System readiness for the innovation

Practices with well-organised New Patient Health Checks, clear and stable staff roles for these checks, that had many supporters of rapid HIV testing and that were able to dedicate time and resources to incorporating the test smoothly into practice routines were better able to implement testing.

Adopter characteristics

Staff who perceived the test as beneficial, easy to undertake and professionally meaningful undertook more tests.

The implementation process

Uptake was smoother and more likely when both senior clinicians and managers took a hands-on approach. If practices devolved decision making to front-line teams but did not follow up with support and feedback, implementation suffered. Dedicated resources such as organisation and support for implementation appeared crucial.

Reinvention and local customisation

Small adaptations to how, where and by whom the test was conducted, without losing the fidelity of the core intervention, sometimes appeared to make a significant difference to its acceptance and routinisation within the practice, though reinvention alone sometimes failed to overcome wider structural or cultural barriers.

CONCLUSION

An adaptation of the diffusion of innovations model was an effective analytical tool for retrospectively explaining high and low-performing practices in a complex intervention research trial.

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