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The Implementation Fidelity Tracker: Development and Dissemination of an Audit-Feedback Tool to Evaluate Implementation-Based Healthcare Efforts

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Abstract

Evaluation of implementation activities in real-time allows for both tailoring of the intervention to allow for the best chance at success. Evaluation also acts as an effective audit-feedback mechanism to highlight barriers and facilitators of the implementation to field staff and key stakeholders, as well as a measure of fidelity to the implementation effort itself. The development and use of an *implementation fidelity tracker* is discussed. This type of implementation tool has widespread implications for evaluation of specific activities pertaining to implementation efforts. Its simplicity and versatility allow for use in a variety of domains.

Keywords: Evaluation; Implementation; Fidelity measure

Background

The successful implementation of any initiative is the culmination of a series of smaller, progressive steps toward a goal. The ability, therefore, to evaluate a series of more discrete steps which encompass an overall implementation plan in real-time would be an integral asset regarding the accomplishment of the intervention in question. The process of developing and disseminating a healthcare quality improvement tool of this sort is the focus of this paper.

Quality improvement

The International Organization for Standardization (ISO) has defined *quality improvement* as the actions taken throughout an organization to increase the effectiveness of activities and processes to provide added benefits to both the organization and its customers [1]. Simply, quality improvement is anything which causes a beneficial change in performance. Healthcare quality improvement, then, are activities that cause beneficial changes in healthcare performance at either the organizational level (e.g., through policy changes) or at the staff level (e.g., improvements in workflow).

Audit-feedback

In regard to quality improvement, *audit-feedback* refers to the process by which information is generated and conveyed back to a study team or research group, so that they can use this information to adjust accordingly [2,3]. The notion behind audit-feedback is that the research team will periodically *feed back project-specific* information to those charged with implementing a given initiative. The research team will have the ability to determine whether or not something is being implemented as intended, whether the policy changes being requested happened in a timely manner, etc. By the use of audit-feedback, the study team can review the progress to date, and make adjustments accordingly. Audit and feedback generally leads to small but potentially important improvements in professional practice. The effectiveness of audit and feedback depends on baseline performance and how the feedback is provided [2] (Figure 1).

United States department of veterans affairs healthcare system

The United States has a comprehensive system of healthcare for Veterans. The United States Department of Veterans Affairs healthcare system (VHA) has grown from 54 hospitals in 1930, to include 171 medical centers nationwide, with more than 350 outpatient, community, and outreach clinics, 126 nursing home care units, and 35 domiciliaries.

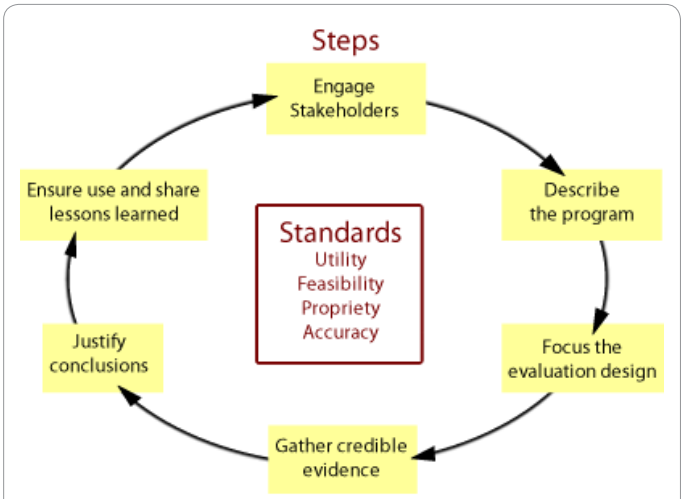

Figure 1: Visualization of Audit-Feedback loop.

VA QUERI-HIV-Hepatitis

In 1998, the VA created the Quality Enhancement Research

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Initiative (QUERI), in an attempt to overcome the long delays in integrating research evidence into routine practice. Ten QUERI groups each focus on a different disease or condition selected because of high prevalence or high burden among Veterans, their families, and the VA health care system [4]. The official mission of the HIV-Hepatitis QUERI is to make evidence-based HIV care more accessible, optimize the application of evidence-based HIV therapies, and improve the delivery of collaborative and comprehensive treatment of co-morbid conditions in order to ensure better health for Veterans who live with HIV.

Implementation of HIV rapid testing in VA primary care clinics: The development and use of an implementation tracker tool

As part of our efforts to expand HIV testing within the VA healthcare system, we recently completed a multi-year routine HIV rapid testing effort at two VA primary care clinics with known, high HIV seroprevalence among their respective patient populations. We chose the VA as a model for integrated systems more generally, and because the electronic medical record facilitated evaluation. Moreover, previous studies have shown HIV positivity rates in VA samples to exceed those of the general medical population [5].

Our challenge regarding implementation was how best to integrate routine HIV testing into primary care, due primarily to testing rates being low in these settings [6,7]. The purpose of the study was to evaluate a wider implementation in two PC clinics and to assess implementation facilitators, barriers and overall success. One of the main evaluation tools employed was what we term the *Implementation Tracker*.

The implementation tracker

An integral part of any quality improvement and/or implementation effort is the ability to adequately gauge the fidelity to said effort. As part of our activities with the VA QUERI HIV-Hepatitis, we devised and utilized just such an audit-feedback tool, which we termed the *Implementation Tracker*. For our purposes, the implementation tracker was employed as to assess the process of implementation regarding the implementation of various HIV testing efforts throughout the VA healthcare system.

As part of our numerous implementation efforts regarding HIV testing in VA, we are aware that 'implementation' (as defined by our previous experience), will necessarily be different at each site, depending on local conditions. It is incumbent on the study/implementation team to assess implementation fidelity in as general a way as feasible. Therefore, when conceptualizing this diagnostic tool, we devised a simple yet effective approach which would allow for the evaluation in real time of implementation based efforts.

Our conceptualization, therefore, consisted of a likert-scale measure with three domains:

- Fully implemented
- Moderately implemented
- Not implemented

Although the content of the tracker will necessarily be different depending on the intervention and the outcomes to be evaluated, for our intervention the tracker tool evaluated some of the following measures pertaining to launching HIV testing:

- Convening of local leaders/staff;
- Evaluation of local HIV policies;
- Local staff engagement with implementation plan;
- Consistency of local HIV policy with our HIV testing model;
- Effectiveness of Champion/Change Agent role.

We scored each element for evidence of the full, partial or non-

Implementation Marker	Likert-scale implementation measure		
	Fully implemented	**Moderately implemented**	**Not implemented**
Convening Local Leaders Introductory project call with PI/local stakeholders to assess barriers, coordinate meeting (s) between NPS and local stakeholders; meeting (s) with local nurse manager to brief on project aims; meeting (s) with local chief of ID to brief on project aims; meeting (s) with local chief of laboratory service to brief on project aims;			
Nurse engagement In-person meeting with local nurses to brief on project aims; Participating nurses identified and trained on NRT procedures; Quarterly audit/feedback to managers/providers			
	Fully implemented	**Moderately implemented**	**Not implemented**
Local HIV Policy Issues HIV policy changed/revised to allow local nurses to administer HIV rapid tests Costs of HIV rapid tests absorbed by Lab rapid tests readily available for use by nurses Consent forms available			
IRM Support Initial calls to local IRM chief to brief on project aims Distribution of HIV testing template software HIV template mapped, loaded, activated			
	Fully implemented	**Moderately implemented**	**Not implemented**
Effectiveness of Champion/ change agent Role Ability to convene Introductory project call with PI/local stakeholders to assess barriers, coordinate meeting (s) between NPS and local stakeholders; Ability to convene In-person meeting (s) with local nurse manager to brief on project aims; Ability to convene meeting (s) with local chief of ID to brief on project aims; Ability to convene meeting (s) with local chief of laboratory service to brief on project aims;			

Table 1: The Implementation Tracker.

implementation of each element. Elements were scored based on duties associated with the completion of the aforementioned measures (e.g., has local staff been identified and initial briefing meetings convened? Are project nurses offering RT on a routine basis, on a partial basis, or not at all?). These questions were answered by monitoring of duties by either project staff or our site champions (Table 1).

This allowed for project staff to be flexible to any changes in implementation strategy (e.g., reinforcement trainings, in-services, etc.), that may need to occur based on initial findings of partial or non-implementation efforts gleaned by our tracker tool.

This type of audit-feedback evaluation is intended to gauge how implementation is proceeding, so that barriers are identified early and staff can work toward resolution. The overall focus of the use of the tracker tool is the extent to which there is *fidelity* to the implementation plan.

The design of the study was a pre-post quasi experiment. We chose two study sites in regions with high HIV seroprevalence and with similar annual unique patient visits. Both sites were located at large urban VA hospitals, one in the Northeast and one in the Southwest. Sites were provided with identical implantation packages, but were encouraged to adapt that package to their local needs.

As part of our initial formative efforts preparing for implementation of our program, we employed formative key informant surveys to ascertain barriers and facilitators to implementation and sustainability of HIV testing. Using data obtained from these surveys of staff and facility management, we were able to derive salient elements to populate our implementation tracker (Table 1), which was then used as an audit-feedback mechanism for both research and local staff to gauge implementation fidelity [8]. In instances where our elements were scoring low on implementation fidelity, we were able, as intended, to make the necessary adjustments (in almost real-time) to increase the likelihood of a successful undertaking.

Implementation of a nurse-initiated rapid HIV testing initiative resulted in significant increases in the number of PC patients receiving HIV testing, thereby contributing to the VA's initiative to increase routine HIV testing for all Veterans [8]. In addition, at site 1, we identified 5 previously undetected HIV-positive Veterans during our study period. At site 2, we identified 9 HIV-positive Veterans during the study period.

Conclusion

The development and use of a simple-to-use tool to evaluate fidelity to an implementation effort is critical, both to the evaluation of that effort, as well as to use the data obtained to revise activities accordingly, to ensure the best chance at a successful outcome.

In conceptualizing the use and revision of this tracker tool for your specific implementation-based purposes, investigators and staff should strongly consider their choice of elements by identifying salient concepts identified as part of a series of formative key informant interviews with staff and/or management prior to the commencement of any implementation effort.

We have developed and employed this tracker tool successfully at the both beginning and throughout a variety of HIV testing interventions to assess implementation fidelity to our HIV testing package [8,9].

The specific HIV testing initiative highlighted in the case study was indeed sustained by both study sites and has now become the standard of care at both facilities. The success of this HIV testing campaign was in no small measure, based on the ability for project staff to evaluate the fidelity to the implementation effort, by the use of the implementation tracker elements and tool.

Finally, future studies which focus on audit and feedback as one method of evaluating implementation efforts should directly compare different methods of providing feedback to identify the most appropriate methods for conveying information back to project and implementation staff.

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