**Supplementary File 17: TIDieR Checklist. For the AFFINITIE Enhanced Content and Enhanced Follow-On interventions**

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| **BRIEF NAME** | |
| AFFINITIE ‘enhanced content’: an intervention to develop theory- and evidence-based audit feedback documents | AFFINITIE ‘enhanced follow-on’ support: a theory- and evidence-based online toolkit to support hospitals’ response to audit feedback |
| **WHY** Describe any rationale, theory, or goal of the elements essential to the intervention | |
| **Intervention theory and rationale**  Each intervention drew on: (A) existing evidence on what makes audit and feedback (A&F) more effective, (B) behavioural science, and (C) empirical work.  **A) Evidence about what makes A&F more effective**  A Cochrane systematic review on the effectiveness of A&F found that it is more effective when feedback: is provided by colleagues or supervisors, is provided in both verbal and written formats, includes explicit targets and action plans to change behaviour, and includes achievable benchmarks/comparators [1].  **B) Behavioural science**  B.1: Control theory   * Control Theory posits that individuals manage their behaviour by: deciding what they want to do or achieve → trying to do it → monitoring their behaviour → assessing whether they are making progress towards their goal → and adapting behaviour [2]. This process is proposed to occur in a cyclical manner (i.e. a feedback loop) and progress through the loop is facilitated by close correspondence between each step. * Control Theory has been used to understand how A&F works [3]. As part of an NHS Blood & Transplant (NHSBT) national comparative audit (NCA) cycle, this may involve: NHSBT setting audit standards → hospitals’ providing data on clinical practice (i.e. behaviour) → NHSBT auditing practice → NHSBT providing audit findings in feedback documents → hospital staff noting a discrepancy between actual practice and goal performance based on audit feedback (or not) → hospital staff responding to audit feedback (or not).   B.2: Behaviour change techniques (BCTs)   * BCTs are defined as the “observable, replicable and irreducible components of an intervention designed to alter or redirect causal processes that regulate behaviour” (i.e. ‘active ingredients’ of interventions) [4]. * Each component of the Control Theory loop can be mapped onto one or more BCTs from a comprehensive BCT taxonomy [4].   B.3: Actor, Action, Context, Timeframe, Target (AACTT) framework   * There is evidence that using specific, concrete wording can increase the likelihood of information being understood and remembered [5]. * The AACTT framework provides guidance for increasing behavioural specificity. Where appropriate and feasible, the AACTT framework may be used to specify behaviour in terms of: who (Actor), should do what (Action), where (Context), when (Timeframe) [6].   **C) Empirical work**  The AFFINITIE programme aimed to gather evidence to evaluate how to enhance NCAs conducted by NHSBT [7]. This work involved a content analysis and document review of audit feedback from NCA cycles, a multiple-case study based on interviews and observations conducted in four UK hospitals, multidisciplinary consensus panels to select enhancements to include in each intervention, intervention piloting, and feasibility and acceptability interviews with clinical transfusion staff (Gould et al 2014).  **Intervention aims**  The Enhanced Content intervention aimed to support the audit leads from the NCA of Blood Transfusion to develop feedback reports incorporating theory- and evidence-based feedback characteristics and components. It is in turn intended that these will be delivered to clinical staff involved in blood transfusion and that the enhanced content reports will be easier and less burdensome to read, and will facilitate staff identifying how they are currently performing, areas of discrepancy with standards and comparators, and key recommendations, targets, and actions for change in light of feedback.  The Enhanced Follow on intervention is intended to prompt and support staff to engage in local response to the feedback, including supporting four key behaviours: dissemination of feedback to key stakeholder groups within the hospital, identifying potential targets for change in light of feedback (Goal setting), action planning and problem solving around potential barriers/enablers to implementing change in light of feedback, , and re-monitoring practice locally to assess subsequent progress and improvements in performance.  Both interventions were designed to be **sustainable** beyond the AFFINITIE programme by providing materials and templates for intervention recipients to adapt and/or reuse in future NCAs. | |
| **WHAT** *Materials:* Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers. Provide information on where the materials can be accessed (e.g. online appendix, URL). | |
| ‘Enhanced content’ included two components: 1) **training audit teams from the NCA of blood transfusion** to write feedback reports containing recommended enhancements to improve the theory- and evidence-based design of the feedback reports**,** and the 2) the resulting **enhanced** **feedback reports**.  **Training writing teams:** Numerous materials were developed to train writing teams to include a number of proposed enhancements in feedback documents: (1) a Powerpoint presentation (2) template/prototype feedback documents, and (3) enhancement guidance documents (brief and full versions) (Appendices 9-10).  The proposed enhancements to feedback content were:   1. In each feedback document, include at least one BCT consistent with each step of Control Theory 2. Ensure audit standards, feedback, recommendations and action plans are behaviourally specific (i.e. based on AACTT) 3. Ensure feedback delivered is clearly related to an audit standard. Take a graded entry approach to feedback reports (see below)). 4. Ensure feedback includes multiple comparators (e.g. national/regional performance, past performance, top 10% of peers) 5. Include a positive message to encourage and recognise good performance 6. Where possible, re-monitor and repeat feedback 7. Improve feedback document presentation (e.g. provide feedback visual format [e.g. graphs], make writing legible, use a consistent layout, personalise feedback)   **Feedback documents:** The feedback reports included several audit standards (i.e. performance metrics) against which hospitals were audited, graphs to indicate both hospital and national performance for each standard, recommendations for improving practice, and suggestions for staff to disseminate feedback to. The feedback documents were designed to incorporate the above enhancements and to use a graded entry approach, which provided reports of different sizes and levels of detail on the audit findings:   1. Key findings report*:* A short summary (6 pages), briefly highlighting audit results and recommendations for key audit standards 2. Full findings report: A medium-sized document (≈30 pages) reporting the relevance of the audit, who was audited, and the findings and recommendations for all audit standards 3. Supplementary findings report: Large document (≈55 pages), reporting information on clinical context and/or any supporting information (e.g. audit data collection details) 4. Action Plan*:* A document with rows to select standards to target and columns to behaviourally specify plans (based on TACTA) | ‘Enhanced follow-on’ included a main intervention, an online **toolkit**—to support hospitals in planning and responding locally to audit feedback—and a **telephone support** co-intervention to prompt, encourage and support key staff who respond to feedback ( i.e. hospital transfusion team) to use the toolkit.  **Toolkit:** The toolkit included various tools, and associated BCTs, which mapped onto the different stages of Control Theory (Appendices 13-14). The toolkit was divided into several sections (specific tools in italics):   1. Introduction page*:* Provided information about how to use the toolkit and how it was designed 2. Engage clinical staff*:* Included tools to help identify staff involved in transfusion decision-making and staff responsible for disseminating feedback (*Dissemination Cascade*), identify barriers to disseminating feedback and how to address these (*Fishbone Analysis*), and make plans based on goals for disseminating feedback (*Action Plan*) 3. Improve patient care*:* Included tools to identify which of the audit standards to target to improve practice (*Selecting Standards*), identify barriers to achieving goals to improve practice and how to address these (*Fishbone Analysis*), make plans based on goals for improving practice (*Action Plan*), and communicate key messages from the audit and the standards that are being targeted (*Poster*) 4. Monitor practice*:* Included tools to conduct small-scale re-audits (*QuickAudit*) and communicate progress towards goals after using the QuickAudit (*Poster*) 5. Dashboard*:* Provided an overview of progress through the toolkit   The toolkit also included features, such as:   * Interactive click buttons to add, remove, and edit elements of tools * Click buttons to mark tools as complete and download tools in PDF format * Editable fields in particular tools to make goals SMART (Specific, Measurable, Achievable, Realistic, Timely) and behaviourally specific (AACTT)   **Telephone support:** Materials to support training and delivery of telephone support for intervention facilitators included: (1) a flowchart with scripted text aimed at encouraging hospital contacts to log into the toolkit (2) a manual with scripted responses to potential queries for intervention facilitators if/when they were providing clinical transfusion staff an overview of the toolkit while on the phone, and (3) spreadsheets to log details of calls. |
| **WHAT** *Procedures:* Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities | |
| **Training writing teams:** Feedback writing teams were provided training in how to apply enhancements to feedback reports in two phases: prior to and during the production of the feedback documents. Prior to producing the documents, training was provided by members of the AFFINITIE research team during an an initial meeting with the audit/feedback writing team. The existing evidence and theory related to A&F was presented, alongside the proposed enhancements and the enhancement guidance materials. Members of the research team also provided ongoing support during the feedback report writing period, by joining teleconferences to discuss progress with the report, and reviewing/commenting on draft reports and providing recommendations on how to further or better incorporate the proposed enhancements.  **Feedback documents:** Procedures for delivering the resulting feedback reports to hospitals followed standard practice. NHS Trust specific reports were uploaded to each Trust’s password protected A&F report library on the NCA of Blood Transfusion’s web portal. The assigned contact for that audit at each Trust (typically a transfusion practitioner) was then sent an email to notify that their reports were uploaded and available for download. | **Telephone support:** All hospitals randomised to receive the toolkit were put on a list with phone numbers for audit contacts. The first part of calls focused on encouraging contacts to log into the toolkit (using the flowchart); if they logged into the toolkit, the second part of calls involved providing an overview of the toolkit and encouraging them to initially engage with using it (using the manual). Details about all calls were logged by intervention facilitators.  **Toolkit:** For hospitals randomised to received the Toolkit, these were uploaded to the same we portal as described for the feedback reports. The assigned local audit contact was notified of the Toolkit’s availability in the same notification email indicating the feedback reports were available for download. |
| **WHO PROVIDED** For each category of intervention provider (e.g. psychologist, nursing assistant), describe their expertise, background and any specific training given | |
| **Training writing teams:** Intervention facilitators included members of the AFFINITIE research team: postdoctoral Research Fellow with a background in psychology (FL), a Professor of Primary Care (RF), a Consultant Haematologist (SS), and a Senior Medical Statistician (MC).  **Feedback documents:** NCA staff at NHSBT. (audit manager and coordinator) uploaded feedback documents to the NCA portal. | **Telephone support:** Intervention facilitators included members of the AFFINITIE research team: postdoctoral Research Fellow (NG), a postdoctoral Research Assistant (CD), and an MSc-level Research Assistant (SMcI). All facilitators had an educational background in psychology. Intervention facilitators were provided three-to-four training sessions prior to delivering telephone support. This involved introducing intervention facilitators to the BCTs delivered in telephone support and using materials in role plays.  **Toolkit:**  NCA staff at NHSBT. (audit manager and coordinator) uploaded the Toolkit to the NCA portal. |
| **HOW** Describe the modes of delivery (e.g. face-to-face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group | |
| **Training writing teams:** The initial training meeting was conducted in a face-to-face group meeting. Subsequent meetings were conducted face-to-face and by telephone, typically lasting one to two hours. Comments and edits on draft reports were provided via email.  **Feedback documents:** Feedback documents were uploaded online to the NHSBT webpage and accessible to hospital staff using a password-protected login. An e-mail was sent to listed audit contacts to notify them that the intervention was available. | **Telephone support:** Telephone support was provided individually.  **Toolkit:** A link tothe toolkit was uploaded online to the NHSBT webpage and was accessible to hospital staff using a password-protected login. An e-mail was sent to listed audit contacts to notify them that the intervention was available. |
| **WHERE** Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features. | |
| **Training writing teams**: Face-to-face meetings were held in a private room at blood donor centres in England.  **Feedback documents:** Hospitals required an internet connection to download the feedback documents. | **Telephone support:** Intervention facilitators used a room with an external phone line located in their university.  **Toolkit:** Hospitals required an internet connection to use the toolkit. |
| **WHEN and HOW MUCH** Describe the number of times the intervention was delivered and over what period of time including the number of sessions, their schedule, and their duration, intensity or dose | |
| **Training writing teams**: The initial training meeting lasted half a day. Subsequent meetings and teleconferences lasted between 1 and 3 hours. Approximately three drafts of the feedback reports were reviewed.  **Feedback documents:** The intervention was delivered once when the feedback documents were uploaded to the NCA website and participating sites were notified by email. | **Telephone support:** One telephone support call was provided to hospitals over a month period following delivery of the toolkit. Calls lasted approximately 15 minutes on average.  **Toolkit:** The intervention was delivered once the link to the toolkit was uploaded to the NCA website and participating sites were notified by email. The toolkit was available for the intervention period. |
| **TAILORING** If the intervention was planned to be personalised, titrated or adapted, then describe what, why, when, and how | |
| **Training writing teams**: There was no tailoring of the training.  **Feedback documents:** Feedback documents included recommendations and suggestions for change based on the hospital’s performance in relation to each standard (e.g. hospitals in the top third received recognition of good practice and a message of encourage. Hospitals in the bottom third were encouraged to set an intermediate goal of working towards the national average). Recommendations were also tailored based on professional/stakeholder groups (i.e. transfusion laboratory staff vs clinical staff prescribing transfusions) | **Telephone support:** All hospitals received a standardised initial telephone support discussion following a pre-specified flow chart. The telephone support manual also included a number of IF 🡪 Then scenarios, representing potential issues an intervention recipient may raise, and providing a suggested response (incorporating behaviour change techniques). This enabled tailoring of telephone support to local needs.  **Toolkit:** The tools in the Toolkit were not tailored. However, hospitals were encouraged to use the provided tools to locally tailor the recommendations (goals + action plans) in the feedback reports. |
| **MODIFICATIONS** If the intervention was modified during the course of the study, describe the changes (what, why, when, and how) | |
| **Training writing teams:** n/a  **Feedback documents:** During Trial 1, some feedback documents were re-issued due to errors in data analysis (e.g. incorrect units of measurement). | **Telephone support:** In Trial 1, after intervention facilitators contacted hospitals, there was a planned second phase of telephone support where hospitals were provided phone contact details to call us back with queries. As we only had one call from hospitals during Trial 1, this phone contact was replaced with an e-mail contact in Trial 2.  **Toolkit:** Three additions were made to the toolkit after Trial 1: (1) an undo/redo button, so users could more easily make edits, (2) a reset function, so that the toolkit could be restored to default, and (3) a timeout function of 15 minutes, to increase the validity of visit duration data. |
| **HOW WELL** Planned + Actual |  |
| Methods for assessing fidelity for both interventions are reported in the AFFINITIE process evaluation protocol [8]. Process evaluation findings are reported in Workstream 3. | Methods for assessing fidelity for both interventions are reported in the AFFINITIE process evaluation protocol [8]. Process evaluation findings are reported in Workstream 3. |

**References**

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