Leveraging theories and concepts to enhance A&F

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Acknowledgements

Our Study Group

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- Kelly Carroll (Coordinator)
- Jeremy Grimshaw
- Noah Ivers
- Susan Michie
- Anne Sales
- Kevin Eva

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Theoretical hypotheses for effective A&F Background

- We lack a theoretical understanding of the mechanisms underlying these interventions
- There are principles of feedback design that are likely to result in more effective feedback in many/most situations
- Knowledge about these principles is distributed across many areas/disciplines (e.g. various branches of psychology, education, economics, management)
- Reviewing all these literatures in detail is impossible

- Interviewing experts from these areas will yield testable hypotheses and guiding principles about effective feedback

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Objective

- To develop a broad list of testable, theory-informed hypotheses about how to improve A&F interventions from a broad range of relevant theoretical traditions

Methods

- **Identify and interview theory experts** from Psychology (social, health, cognitive, organizational), Education, Human Factors, Medical Education, Economics, Management, and related disciplines
- Experts: publication history of experience related to the use of feedback, expertise in one or more feedback theories, applied theory to their work
- Purposive Sampling: Research team generated a list, snowball sampling

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Methods

- 90-minute telephone interviews (We did give them an honorarium!)
- Show them ~4 representative **examples of A&F interventions** from the health literature (usually discussed at least 3 of them, range)
- Provided interview protocol prior to interview (samples, papers, guide)

- Interviews
  - Describe their theoretical expertise and the theories that guide their work
  - Initial open-ended reactions to each example, aspects they liked or disliked about each intervention, and how they would go about improving it, should these examples work – why or why not? How would they approach the problem of designing improved A&F interventions.
  - Specific, theory-informed hypotheses about the conditions for effective design and delivery of A&F interventions – less about intuitive ideas on designing better A&F
  - Attempted to generate related mechanisms of action, contextual factors, outcomes that we would measure to test hypotheses

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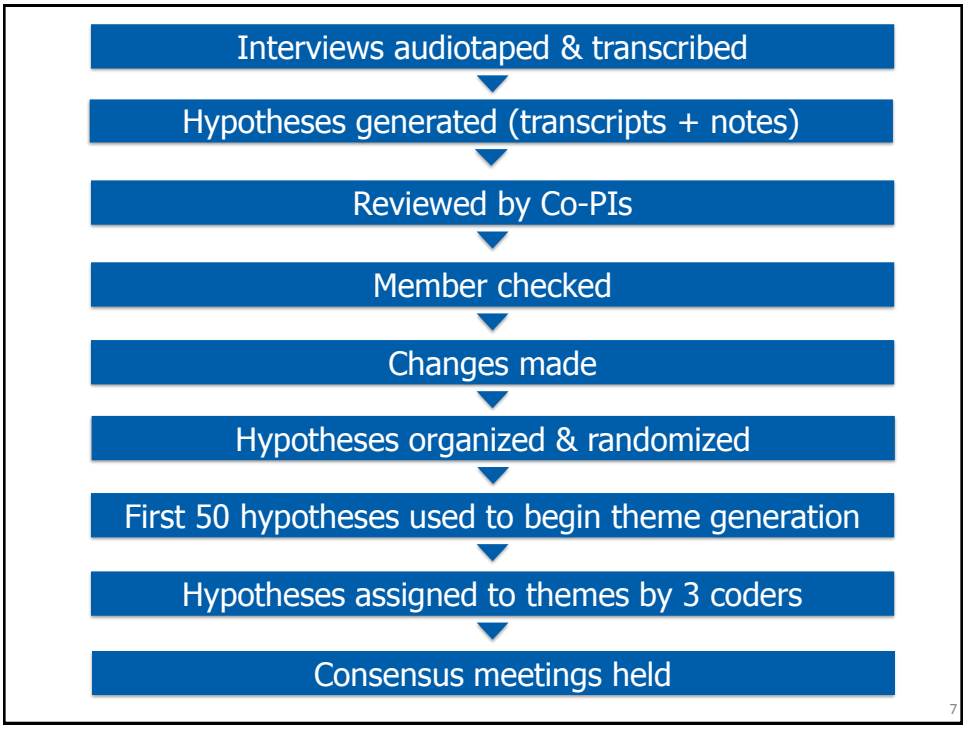

RESULTS

Participating Experts (*N* = 28)	
Sex	
Male	20
Female	8
Country	
US	18
Canada	5
Other	5
Expertise in	
Psychology(Cognitive, Social, Health, Organizational)	20
Human Factors	2
Education	8
Medical Education	5
Economics	3
Management	4
Methods/Assessment	8
Medical Decision Making	7

- We approached 47 theorists over a one-year period.
- Twenty eight (60%) agreed to participate
- 14 unable to contact
- 5 refused (2 too busy, 3 a lack of expertise)

Together, there were over 100 different areas of expertise provided by the participants

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Results

- Results: We generated **389 hypotheses!**
- In the process of working through the data, some ideas seemed **uncontroversial**
- But when you look at the literature, they **aren't being consistently (or ever) applied**
- These 'Low-hanging fruit' issues could be used to improve feedback interventions NOW
- Output #1 of our work

Annals of Internal Medicine ACADEMIA AND THE PROFESSION

Practice Feedback Interventions: 15 Suggestions for Optimizing Effectiveness

Jamie C. Brehaut, PhD; Heather L. Colquhoun, PhD; Kevin W. Eva, PhD; Kelly Carroll, MA; Anne Sales, PhD; Susan Michie, PhD; Noah Ivers, MD, PhD; and Jeremy M. Grimshaw, MD, PhD

Electronic practice data are increasingly being used to provide feedback to encourage practice improvement. However, evidence suggests that despite decades of experience, the effects of such interventions vary greatly and are not improving over time. Guidance on providing more effective feedback does exist, but it is distributed across a wide range of disciplines and theoretical perspectives.

Through expert interviews; systematic reviews; and experience with providing, evaluating, and receiving practice feedback, 15 suggestions that are believed to be associated with effective feedback interventions have been identified. These suggestions are intended to provide practical guidance to quality improvement professionals, information technology developers, educators, administrators, and practitioners who receive such interventions. Designing interventions with these suggestions in mind should improve their effect, and studying the mechanisms underlying these suggestions will advance a stagnant literature.

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For author affiliations, see end of text.
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*Based on: Interviews, data from existing reviews – including the Cochrane Review, research group discussion and experience

15 Suggestions

Nature of the desired action

1. Recommend actions consistent with established goals and priorities
2. Recommend actions that can improve and are under control of the recipient
3. Recommend specific actions

Nature of the data available for feedback

4. Provide multiple instances of feedback
5. Present feedback as soon as possible, at a frequency informed by the number of new patient cases
6. Provide individual rather than general data
7. Choose comparators that reinforce desired behavior change

Feedback Display

8. Closely link the visual display and summary message
9. Present feedback in > 1 way
10. Minimize extraneous cognitive load

Delivering the feedback intervention

11. Address barriers to use of feedback
12. Provide short, actionable messages followed by optional detail
13. Address credibility of the information
14. Prevent defensive reactions to feedback
15. Construct feedback through social interaction

RESULTS

- ~389 hypotheses identified from 28 participants
- 313 hypotheses once identicals removed
- 30 themes
  - 2 – 33 hypotheses per theme

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30 Themes

1. Cognitive Load (n=33)
2. Comparisons (n=26)
3. Feedback Timing (n=20)
4. Action Plans/Coping Strategies (n=19)
5. Social Engagement (n=17)
6. Feedback Specificity (n=16)
7. Goal Setting (n=16)
8. Trust/Credibility (n=14)
9. Motivation/Intention (n=13)
10. Knowledge/Learning (n=13)
11. Remove Barriers (n=11)
12. Justify Need for Behaviour Change (10)
13. Recipient Characteristics (n=9)
14. Recipient Priorities (n=9)
15. Cognitive Influences (n=7)
16. Attack on Self-Identity (n=7)
17. About Aspects of Behaviour (n=7)
18. Opportunity Costs (n=7)
19. Nature of the Data (n=6)
20. Guide Reflection (n=6)
21. Improving Memory (n=6)
22. Attract/Maintain Attention (n=6)
23. User-Guided Experience (n=6)
24. Self-Efficacy/Control (n=5)
25. Decision Processes or Conceptual Model (n=4)
26. Environment (n=4)
27. In-Person Feedback (n=2)
28. Responding to Feedback Providers (n=2)
29. Development Process Involvement (n=2)
30. Single Hypotheses (n=10)

RESULTS - Themes

Theme	# of Hypo-theses	Examples *"Feedback will be more effective…"*
Comparisons	26	… when multiple individual physician practice data are presented along with the recipients' data. … when a clear and explicit benchmark is provided.
Trustworthiness /Credibility	14	… if it is perceived to be without conflict of interest; … when data are perceived as plausible by recipient. ….when recommendations related to the feedback are based on good quality evidence
Development Process Involvement	2	… if recipients are involved in the design/development of the feedback intervention.
Social Engagement	17	…. if they involve engaging recipients in social discussion about the feedback

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Category (hypotheses)	Themes (n=30)
Related to the content of the A&F (n=145)	10 themes Cognitive Load; Comparisons; Action Plans/Coping Strategies; Feedback Specificity; Goal Setting Justify Need for Behaviour Change; Cognitive Influences; Nature of the Data; Guide Reflection; Improving Memory
Related to the A&F recipient (n=63)	7 themes Trust/Credibility; Motivation/Intention; Recipient Characteristics; Recipient Priorities; Attack on Self-Identity; Attract/Maintain Attention; Self-Efficacy/Control
Related to the delivery of the A&F (n=60)	6 themes Feedback Timing; Social Engagement; Knowledge/Learning; User-Guided Experience In-Person Feedback; Responding to Feedback Providers
Related to the behaviour (n=22)	3 themes Remove Barriers; About Aspects of Behaviour; Decision Processes or Conceptual Model
Other (n=23)	4 themes Opportunity Costs; Environment; Development Process Involvement; Single Hypotheses

Limitations

- Labour intensive and challenging, required the brain power of 3 people! Jargon unfamiliar - subtleties potentially lost
- Different examples could have generated different hypotheses
- Frequency not an indicator of importance
- Might not have covered all relevant disciplines and theoretical perspectives
- Category scheme was fit to purpose, not a proposed standard – an A&F taxonomy would be nice

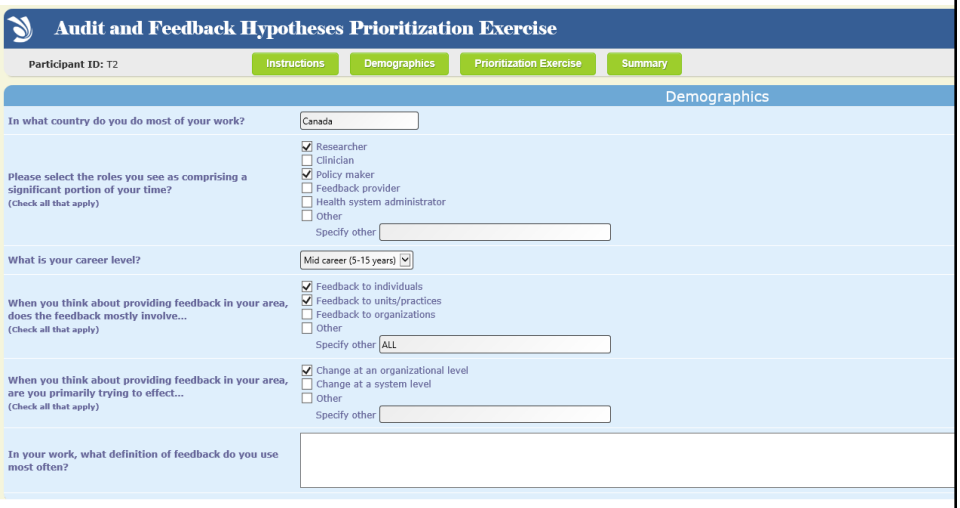
Conclusions

- 313 testable, theory-informed hypotheses from a broad range of behavioural and social science that suggest conditions for more effective A&F interventions
- Further work planned to set research priorities

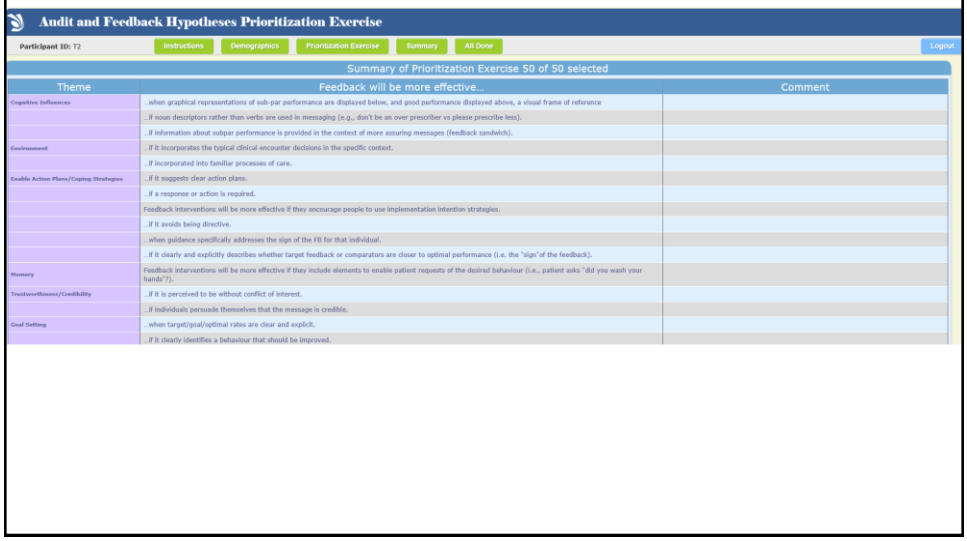
To (open) access the paper:

https://implementationscience.biomedcentral.com/articles/10.1186/s13012-017-0646-0

Future prioritization exercise




Audit and Feedback Hypotheses Prioritization Exercise
Participant ID: T2
Instructions
Demographics
Prioritization Exercise
Summary
Logout
Prioritization Exercise 50 of 50 selected
Theme
#
Feedback will be more effective...
Selected (optional comment)
About Aspects of Behaviour
11
Feedback interventions focusing on multiple behaviours will be more effective when behaviors are targeted for change sequentially before proceeding to the next behaviour.
Environment
12
...if it incorporates the typical clinical encounter decisions in the specific context.
13
...if incorporated into familiar processes of care.
14
Feedback interventions will be more effective if the environment encourages the desired behaviour as the default.
Enable Action Plans/Coping Strategies
15
...if it suggests clear action plans.
16
...if a response or action is required.
17
Feedback interventions will be more effective if they encourage people to use implementation intention strategies.
18
...if it avoids being directive.
19
...when guidance specifically addresses the sign of the FB for that individual.
20
...if it clearly and explicitly describes whether target feedback or comparators are closer to optimal performance (i.e. the "sign"of the feedback).
Previous 10
Next 10


Audit and Feedback Hypotheses Prioritization Exercise
Participant ID: T2
Instructions
Demographics
Prioritization Exercise
Summary
All Done
Logout
Summary of Prioritization Exercise 50 of 50 selected
Theme
Feedback will be more effective...
Comment
Cognitive Influences
...when graphical representations of sub-par performance are displayed below, and good performance displayed above, a visual frame of reference
...if noun descriptors rather than verbs are used in messaging (e.g., don't be an over prescriber vs please prescribe less).
...if information about subpar performance is provided in the context of more assuring messages (feedback sandwich).
Environment
...if it incorporates the typical clinical encounter decisions in the specific context.
...if incorporated into familiar processes of care.
Enable Action Plans/Coping Strategies
...if it suggests clear action plans.
...if a response or action is required.
Feedback interventions will be more effective if they encourage people to use implementation intention strategies.
...if it avoids being directive.
...when guidance specifically addresses the sign of the FB for that individual.
...if it clearly and explicitly describes whether target feedback or comparators are closer to optimal performance (i.e. the "sign"of the feedback).
Memory
Feedback interventions will be more effective if they include elements to enable patient requests of the desired behaviour (i.e., patient asks "did you wash your hands"?).
Trustworthiness/Credibility
...if it is perceived to be without conflict of interest.
...if individuals persuade themselves that the message is credible.
Goal Setting
...when target/goal/optimal rates are clear and explicit.
...if it clearly identifies a behaviour that should be improved.

Thank you

Questions?

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