

Leveraging technology
to collect qualitative
& mixed methods data
in asynchronous &
remote settings

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Objectives

- What we mean by technology-based data collection
- Why use technology for data collection
- Three methods
 - N-of-1 trials
 - Just in Time Adaptive Interventions (JITAI)
 - Nominal group technique/Delphi method
- Putting together methods in a mixed methods study
- Cautions and considerations



What is technology-based data collection?

- Technology is the primary mechanism to gather quantitative and/or qualitative data



Why use technology for data collection

- Convenience for participants
- Ease of recording data for later analysis
- Data quality typically high
- Possibility to enlarge samples and/or target recruitment



Opportunities for technology-based mixed methods data collection

- Commonly used
 - Active data collection
 - Surveys—Qualtrics, Survey Monkey, Captera, etc.
 - Focus groups, interviews—any videoconference platform
 - Passive data collection
 - Data extraction—GIS, pedometers, sleep, etc.



N of 1 Interviews

- Within subject interviews
 - Qualitative or quantitative
 - Designed to identify the optimal approach, treatment or intervention for an individual



Nudge me: tailoring text messages for prescription adherence through N-of-1 interviews

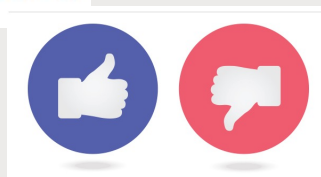
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Joy Waughtal ✉, Phat Luong, Lisa Sandy, Catia Chavez, P Michael Ho, Sheana Bull

Translational Behavioral Medicine, Volume 11, Issue 10, October 2021, Pages 1832–1838,

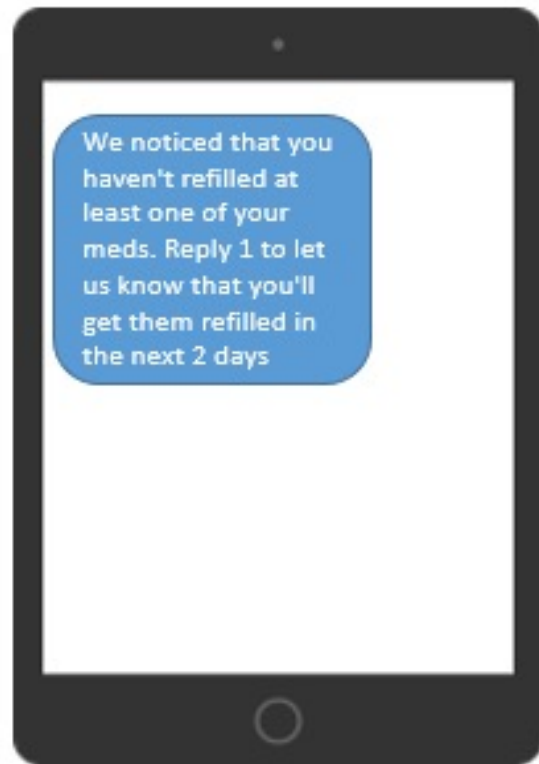
<https://doi.org/10.1093/tbm/ibab056>

Published: 03 June 2021



- Recruited from Cardiac Clinics in person
- 1 on 1 interviews
- 30 minutes
- Hosted on Zoom
- Sent presentation attached PowerPoint and Google Slides via email
- Recorded on Zoom
- What do you like/ What do you dislike?
- 60 interviews total 20 at each of 3 sites

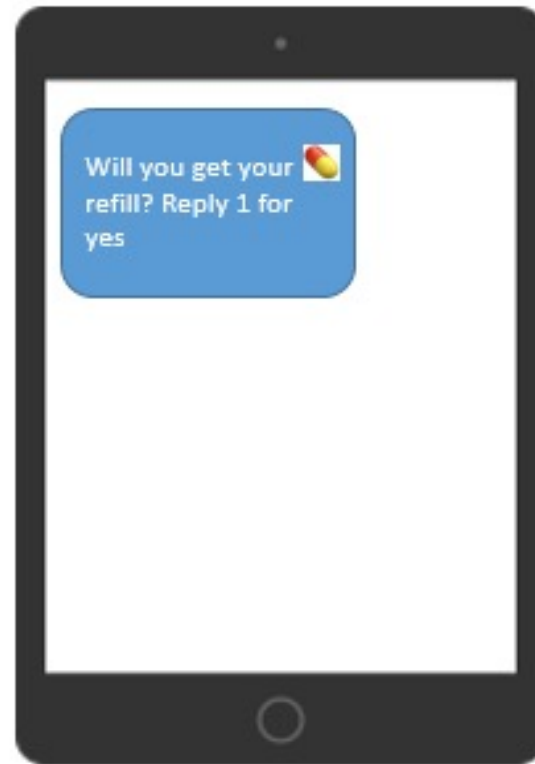
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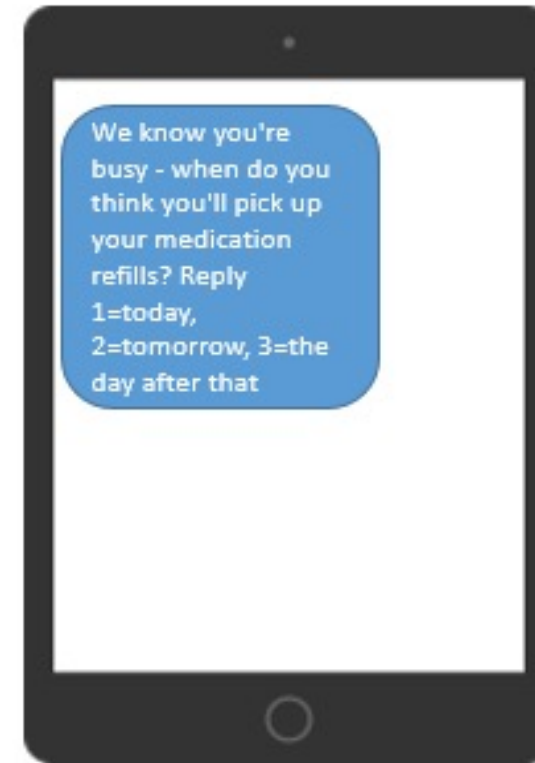
A



B

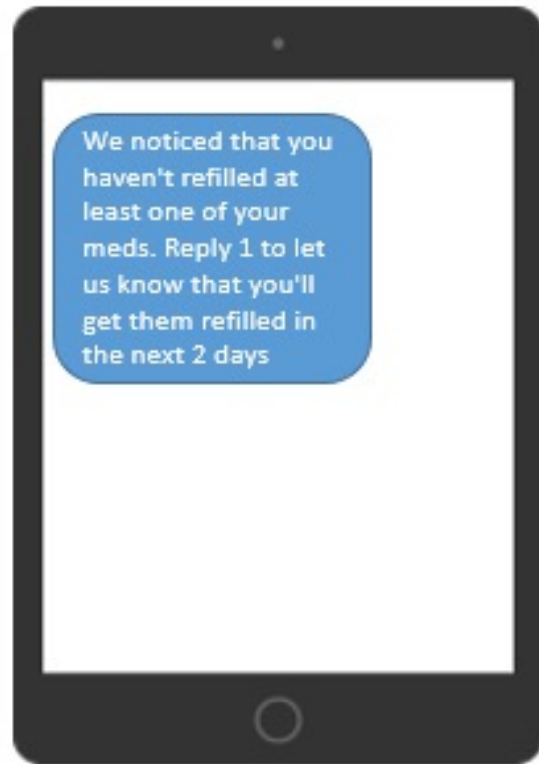


B

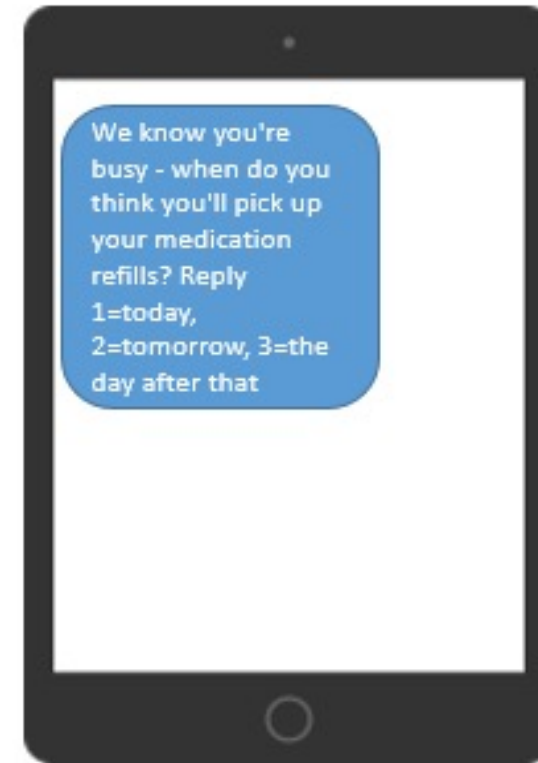


C

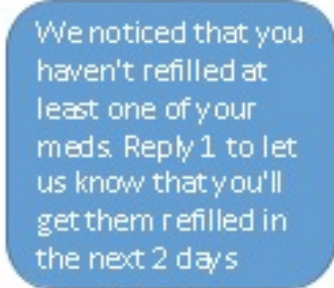
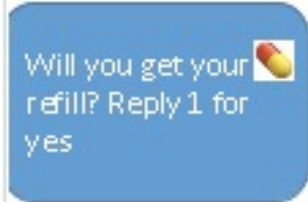

Day 1 continued...



A



C

			
	Screen2		
	A	B	C
Offensive			
Don't Understand			
Don't Like			2
TOTAL NEGATIVE (SUM of first 3 variables)	0	0	2
Positive Response	1	1	
Other suggestions or feedback for specific messages		UCH116 "Positive simple quick reminder"	UCH116-"big brother like"

N of 1 interviews

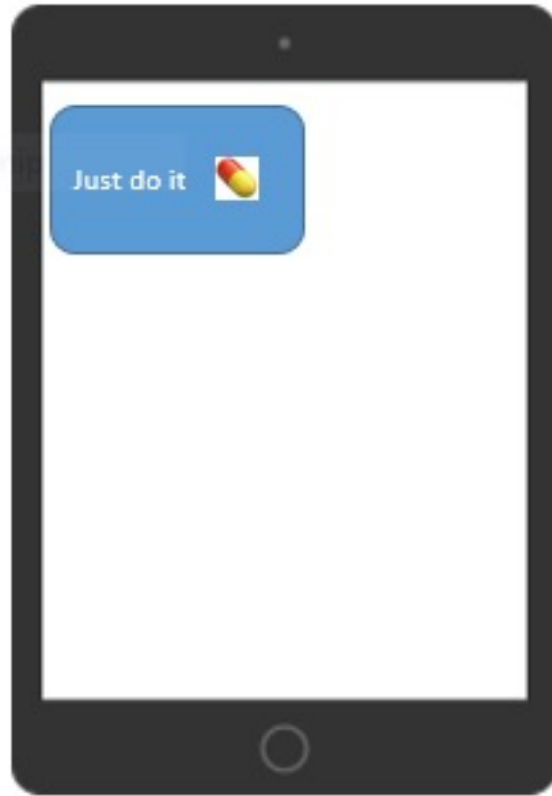
Progress & Findings

- “I like that the messages put the ownership on self.”
- “I like the ones that relate to a hospital stay. I’ve been in the hospital and once you have done that you will want to avoid it in the future. It’s good motivation for me to stay out of the hospital.”
- “The message validates my feelings that it is hard to take meds. Realizing a break down in your body, the meds are the confirmation of that.”
- “This message makes me smile. It lightens it up and this can be a serious topic, so it is nice to smile.”

N of 1 interviews

Progress & Findings

Examples of
messages
that
received
negative
feedback



B



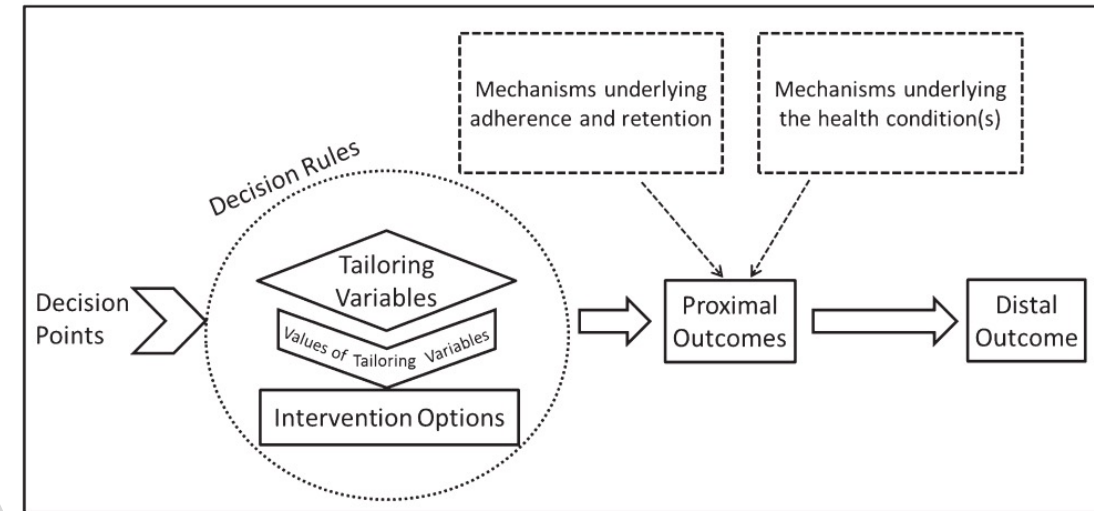
C



C

Just in time adaptive interventions (JITAI)

- During an intervention
- Uses quantitative and/or qualitative data to deliver the right aspect of an intervention at the right time and in the right amount



Just in time adaptive interventions (JITAI)

- FOCUS study for management of schizophrenia
 - Smartphone application sends alerts 3X daily on 5 domains (sleeping, mood, medication adherence, social functioning, coping)
- ACHES focus on support for persons in recovery
 - Smartphone application offers support based on need using a CBT model
 - Also uses GIS to track where a person is and sends an “alert” when they enter a high-risk area (*passive*)
- Sit Coach
 - Smartphone alert after 30 minutes of uninterrupted keyboard activity to move

Just in time adaptive interventions (JITAI)

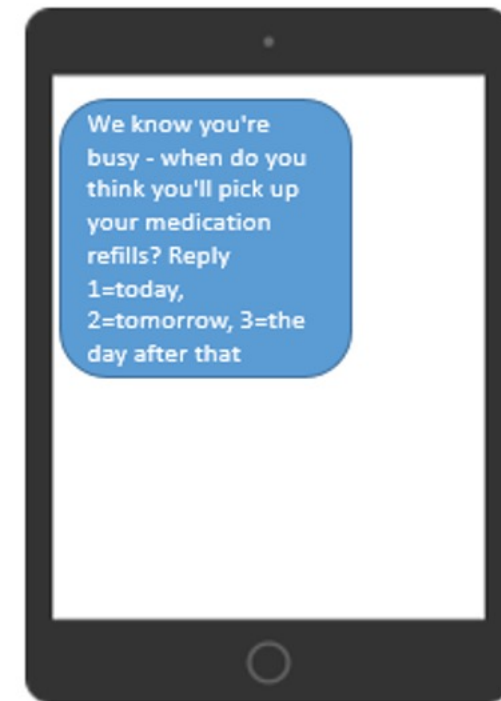
Reliance on data for decision and branching

- “Just in time” sending the right message at the right time
 - Tailoring: specific to the individual with active or passive engagement (e.g., the ACHES example)
 - Timing: multiple touch points each day
- “Adaptive” altering the pathway of an intervention depending on the response of an individual (*active*) or their circumstances (*passive*)

Just in time adaptive interventions (JITAI)




Nudge

- Patient prescribed CV medication
- Just in time:
 - When they have a refill gap ≥ 7 days
- Adaptive
 - Chatbot arm: message response will change based on user response



Just in time adaptive interventions (JITAI)

Nudge

	Great work! Thanks for letting us know!	Surescripts...zed_English Row: #1 This is ...rom the ...	2/28/2022 5:50PM MST Sent Sent as Single SMS
	Done, already picked up my medformin	Surescripts...zed_English Row: #1 This is ...rom the ...	2/28/2022 5:50PM MST
	<p>This is a message from the Nudge Study at Denver Health.</p> <p>Hi Gloria,</p> <p>We noticed you haven't refilled your Metformin. Reply 1= I'll get them refilled in the next 2 days. Reply 2= I'm still working on a plan to get this done.</p> <p>Para mensajes en Español por favor responde Español.</p> <p>If you have already filled your prescription, let us know by replying with the word DONE.</p> <p>Your doctor and healthcare team all agree that it is important for you to get your COVID-19 vaccine if you haven't already! Go to vaccines.gov or call 1-877-CO-VAX CO (1-877-268-2926) to register for a shot. Questions about the vaccine? Text them to 814-561-2015.</p> <p>This is the 1st of 5 messages you'll receive until you can refill.</p> <p>Reply STOP to quit, HELP for info. Msg&DataRatesMayApply</p>	Surescripts...zed_English Row: #1 This is ...rom the ...	2/28/2022 4:00PM MST Sent Sent as Multi-part SMS (5 parts)

Nominal group technique

- Small group process for the generation of ideas— focus is on consensus
 - Silent generation
 - Round Robin
 - Clarification
 - Ranking



Original Paper | [Published: 04 August 2015](#)

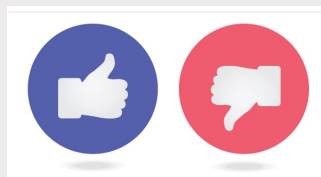
Iteratively Developing an mHealth HIV Prevention Program for Sexual Minority Adolescent Men

[Michele L. Ybarra](#) , [Tonya L. Prescott](#), [Gregory L. Philips II](#), [Sheana S. Bull](#), [Jeffrey T. Parsons](#) & [Brian Mustanski](#)

[AIDS and Behavior](#) **20**, 1157–1172 (2016) | [Cite this article](#)

871 Accesses | **27** Citations | **7** Altmetric | [Metrics](#)

Abstract



- Recruited via online social media ads
- Participants posted responses via an online bulletin board
- Multiple sessions over a three-day period
- Sent presentation attached PowerPoint and Google Slides via email
- What do you like/ What do you dislike? Differences by sexual experience?

Delphi Method

- Structured group interaction
- Employs multiple iterations of questionnaires with closed & open items
- Panels are of variable size
- After the initial questionnaire, subsequent iterations contain detail on individual's and mean response ratings

Indicator 1. Number of patients whose medication history was taken on admission (by pharmacy staff) as a percentage of the number of patients admitted over a defined period of time.

Your previous score

7

Median for indicator

8

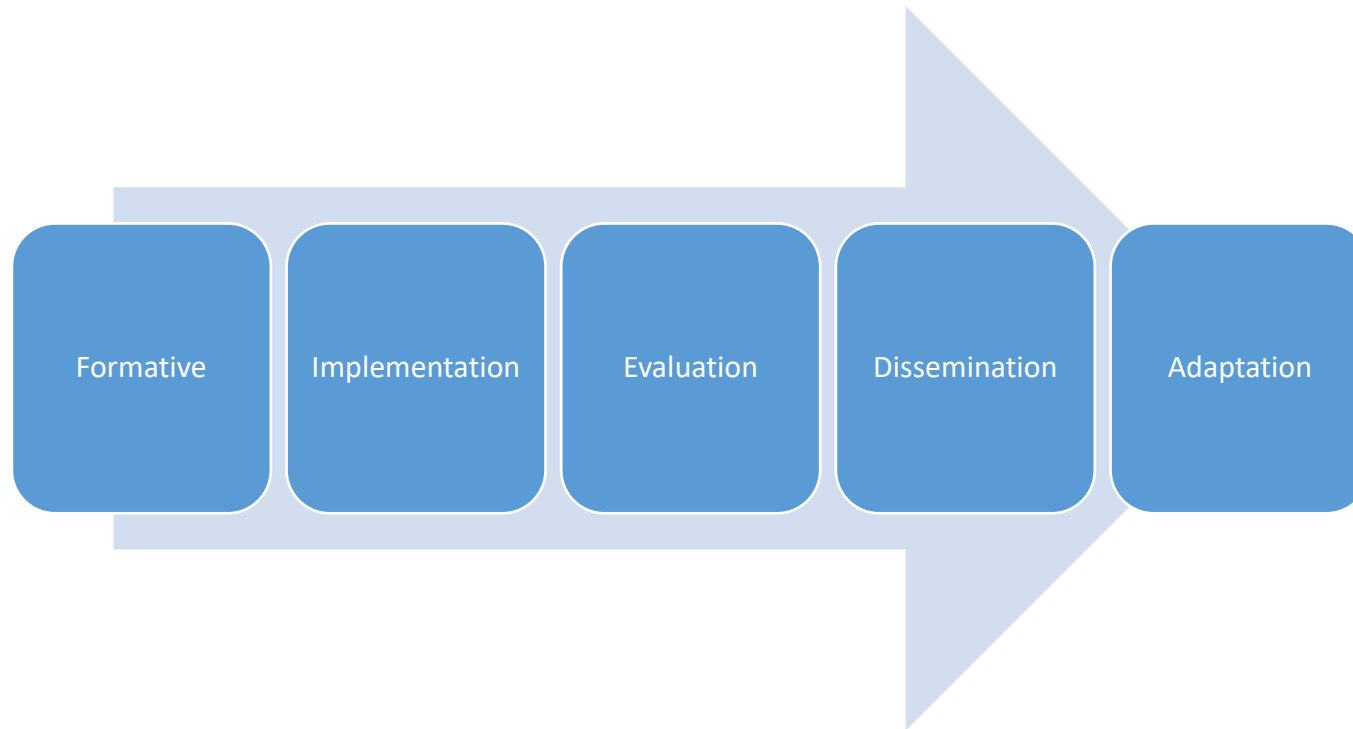
	Inappropriate			Uncertain			Appropriate		
Scale	1	2	3	4	5	6	7	8	9
Responses (n)	(1)	(4)	(2)	(1)	(5)	(6)	(13)	(17)	(15)

Number of respondents giving comments = 28

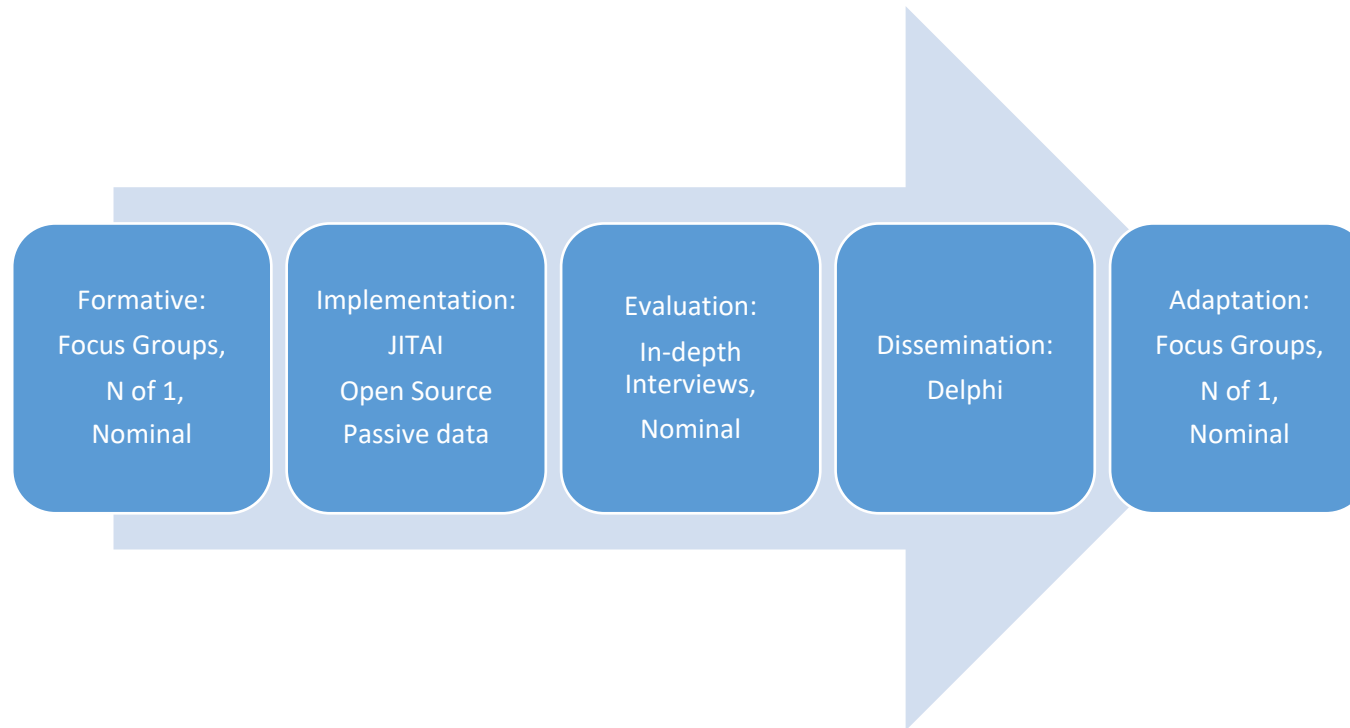
Summary of comments:

- *More relevant and useful to know that history is obtained by staff specifically trained to do medicines reconciliation*
- *For the vast majority of cases pharmacy is not a 24-hour service. Therefore, weekends and holidays should be considered.*
- *Quantitative not qualitative data so quality of MR carried out would not be proven.*
- *Might not be important because we are looking at collecting data on the whole MR process.*
- *On admission would need a clear definition (i.e. after the patient being admitted by a nurse, clerked by a junior doctor or seeing by a consultant)*

Mixing methods



Mixing methods



Cautions

- Establishing rapport online
- Ensuring security and confidentiality
- Fraud
- Bots

Considerations

- Who are you working with?
- What are their preferences?
- Reliability and validity
- Replicability
- Pragmatism



Questions?

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