

## Appendix 1: Diagram representing the Distributed Cognition for Teamwork Framework



<https://www.sciencedirect.com/science/article/pii/S1532046414002718>

## Appendix 2: Topic guides

### Topic guide for focus groups

1. What personal records do you keep about your medicines? When I say records I mean any type of personal information that you keep about your medicines, not necessarily a formal document. (artefact model)

2. What made you start keeping this information? (evolutionary model)

3. How has your use of these records changed over time? (evolutionary model)

Prompts: Adding info, removing info, changing from paper to digital, etc.

4. How do you use these records? (information flow model)

5. Prompts: When do you carry them?/

6. How do you find using them?

7. How do you mix these records with any other information? (information flow model)

8. Have you ever thought about using any other types of records about your medicines?

9. Have you ever used any other types of records about your medicines?

Prompts: MMP, apps, paper vs electronic

10. Which healthcare professionals have you seen over the last 3 months? (social model)

Prompts: doctors, pharmacists, nurses, doctors, dentists, physiotherapists, occupational therapists, opticians, podiatrists

(prompt to use diary or calendar if needed)

11. When have you seen them?

(prompt to use diary or calendar if needed)

12. In which consultations have you used the records that you keep about your medicines? (artefact and social models)

Prompts: Use information gained above to ask about each consultation

13. For each of these consultations, how have you used these records? (social model)

Prompts: Who shown to, why?

14. How have others reacted when you have shown them your records? (social model)

15. Is it ok if I have look at/ make a copy of your records? (artefact model)

16. Can you talk me thorough them? (artefact model)

Prompts: design, strengths, weaknesses, potential redesign (artefact model)

17. Are there any standout moments where your personal medication records have turned out to be really useful? (social model)

Prompts: Can you talk me through this?

18. Are there any standout moments where your personal medication records have turned out to be not very useful? (social model)

Prompts: Can you talk me through this?

19. Is there anything else you would like to add?

Interview number .....

Digital/electronic

Basic/extensive

Date of birth .....

Gender( male, female/ other/ prefer not to say)

Ethnicity

Number of medicines (on PHIMed record?)

Anyone who helps you with your medicines? (yes/no)

Long term conditions .....

Disabilities .....

MMP= My Medication Passport

### Topic guide for interviews with healthcare professionals

1. What information is it important for you to have about patients' medicines?

Prompts: OTC meds/ meds from other prescribers (social model) What information do you feel it is helpful to you for patients to carry around about their medicines? (social model)

2. What types of information do you feel is important for patients to bring to consultations? (social model)

3. What role do you feel patient held medication records have in transfer of medication related information across healthcare settings? (information flow model).

4. What types of information do patients bring to appointments about medicines? (artefact model)

5. How often do patients show you records about their medicines? (information flow model)

6. What prompts patients to show these to you? (social model)

7. How do you feel when patients show you information about their medicines? (social model)  
How have you reacted when patients have shown you information about their medicines? (social model)

8. Can you tell me about a positive scenario where this has been particularly useful and constructive? (social model)
9. Can you tell me about any more negative interactions, e.g. where this information might have been unwanted, wrong or delayed things?
10. Who has generally filled in the medication records that patients bring?(social model)
11. How do you feel about that?(social model)
12. Who do you feel should ideally fill in records that patients carry around with them about their medicines? (social model)
13. What do you feel prevents patients from carrying around information about their medicines?
14. What do you think would encourage patients to carry around more information about their medicines?
15. What do you think would encourage patients to show you medication records that they have during consultations?
16. Do you have anything else to add about patient held medication records?

#### Topic guide for interviews with users of patient-held medication lists

1. What personal records do you keep about your medicines? When I say records I mean any type of personal information that you keep about your medicines, not necessarily a formal document. (artefact model)
2. What made you start keeping this information? (evolutionary model)
3. How has your use of these records changed over time? (evolutionary model)  
**Prompts:** Adding info, removing info, changing from paper to digital, etc.
4. How do you use these records? ( information flow model)
5. Prompts: When do you carry them?/
6. How do you find using them?
7. How do you mix these records with any other information? (information flow model)
8. Have you ever thought about using any other types of records about your medicines?
9. Have you ever used any other types of records about your medicines?  
**Prompts:** MMP, apps, paper vs electronic
10. Is there any information that you would prefer not to include on your record?  
**Prompts:** Allergies, reasons for taking medicines, some medicines
11. Which healthcare professionals have you seen over the last 3 months? (social model)  
**Prompts:** doctors, pharmacists, nurses, doctors, dentists, physiotherapists, occupational therapists, opticians, podiatrists  
(prompt to use diary or calendar if needed)
12. When have you seen them?

(prompt to use diary or calendar if needed)

13. In which consultations have you used the records that you keep about your medicines?  
(artefact and social models)

**Prompts:** Use information gained above to ask about each consultation

14. For each of these consultations, how have you used these records? (social model)

**Prompts:** Who shown to, why?

15. How have others reacted when you have shown them your records? (social model)

16. Is it ok if I have look at/ make a copy of your records? (artefact model)

17. Can you talk me thorough them? (artefact model)

**Prompts:** design, strengths, weaknesses, potential redesign (artefact model)

18. Are there any standout moments where your personal medication records have turned out to be really useful? (social model)

**Prompts:** Can you talk me through this?

19. Are there any standout moments where your personal medication records have turned out to be not very useful? (social model)

**Prompts:** Can you talk me through this?

20. Is there anything else you would like to add?

Interview number .....

Digital/electronic

Basic/extensive

Date of birth .....

Gender( male, female/ other/ prefer not to say)

Ethnicity

Number of medicines (on PHIMed record?)

Anyone who helps you with your medicines? (yes/no)

Long term conditions .....

Disabilities .....

MMP= My Medication Passport

## Appendix 3: Tools assessed

Digital tools included Personal Medication Diary, Medication Reminder & Pill Tracker, Updoc Health diary, Pill logger, Medisafe Pill Reminder and Medication Tracker, ® Medication Diary, MySymptoms Food Diary & Symptom Tracker, Women's Health Diary, Pain Diary & Forum, CatchMyPain, Medical record, Medical Records App, Mobile Health Record, Personal Health Record, EHR / EMR Health records, Andaman7, Lifecard, Medical ID : ICELaurent, MHR SelfCare, Axxess Health One, MedTracker, Medical ID Record -Pill Reminder Alarm, Medical Records Tracker, Family medical Manager, HLHS Health Journal, PlusData, DavaReco Pills - reminder for daily taking medicine and pills medication reminder, LittleDot - health child diary, iHealth Log , Drugstars: medicine reminder, Pill Monitor: Drug Minder, Medicine Time, Medicy - Medicine tracker, medicine reminder, pill monitor pr, Pill reminder medication alarm legais, medicine time pro, Pill Time, med time, Med Time Lite, Wez Dawke, Pills Time: reminder 4 health, MyMedimate, Pill Watch, Med & Pill Reminder, Time For Meds, Med Log Lite Takelt. Healthera - NHS Medication app, patientMpower, Echo - NHS prescriptions, MyMedSchedule plus, my Meds Plan, Mymeds ,Iphone health , Mynotes, drugs.com, HealthVault, MyMeds, MyMedSchedule

Paper tools included My Medication Passport, Knowledge is the best medicine , Record of My Medicines and How Well They Work (Lancaster general health), Daily Medicine Schedule (Lancaster general health), Master List of Medicines (Lancaster general health), Regular Checkup for a Child (Lancaster general health), Epilepsy Passport (RCPCH), My Medication Book (Dorset county hospital), Lifebook (AgeUK), Parkinson's medication card, my drug & supplement diary, medication dosing schedule (free printable medical forms), Medication Record (free printable medical forms), Daily medication schedule detailed (free printable medical forms), medical history form (free printable medical forms), Daily Health Diary (free printable medical forms), Daily Medications Log (free printable medical forms), Weekly Medications Log (free printable medical forms), Weekly Health Diary (free printable medical forms), Monthly Medications Log (free printable medical forms), Monthly Health Diary (free printable medical forms), Medication Record card (free printable medical forms), medical information sheet (free printable medical forms) my medicine record, AARP my personal medication record, Eastland memorial hospital medication record, My Medication Record (Washington patient safety coalition), My Medicine List™ (Washington patient safety coalition), Personal medication record (Washington patient safety coalition), My Medicines (Washington patient safety coalition), Speak up My Medication List (Washington patient safety coalition), My Medication record (Washington patient safety coalition), My Medication List (Washington patient safety coalition), HINET-Medcard (Washington patient safety coalition), Medication record, Medication record form, medication history record (Adena health system), my medication log - keep it handy, medication administration record, medication tracker, I've got an owl!, medication and surgical history.

## Appendix 4 Definition of the key features

<b>Key feature</b>	<b>Definition</b>
<b><u>Core features</u></b>	
Record of current medication	Ability to record current medications, e.g. prescribed medicines, over the counter medicines, complementary medication, oxygen, vitamins and vaccinations.
<b>General features</b>	
Easy to make changes to medicines	Ability to edit details about a medicine, without having to re-enter the full details.
Customisable/able to personalise	Allows the user to only show and enter the data related to the medicines they want.
<b>Patient level fields</b>	
Allergies, sensitivities and contraindications	Availability of a field to record any allergy, sensitivity or contraindication.
Free-text box at patient level	Ability to add more information about the user, e.g. contact details, NHS number, parent/carer/healthcare professional details, login details and swallowing difficulties.
<b>Medicine level fields</b>	
Generic name of medicines	Ability to record the generic name of each medicine.
Medicine strength	Ability to record the medicine strength, e.g. 500mg.
When medicines are taken	Ability to record when medicines are taken, e.g. morning, or how frequently they are taken, e.g. daily.
Medicine formulation	Ability to record the medicine formulation, e.g. tablet.
Medicine indication	Ability to record the intended use of the medicine.
Free-text box at medicine level	Ability to add more information on the medicine, e.g. administration instructions.
<b><u>Requirements for some users</u></b>	
Medication history	Ability to record previous medicines.
<b>General features</b>	
Accessibility of information in an emergency	Availability of the tool in an emergency situation to provide the required information about a patient, without needing a password or other identifier to access it.
Ability to share with others	Ability to share information on medications with a third party. This does not include showing a mobile phone app or website, as this requires unlocking and accessing the application/website. However, this does include paper tools as these are easily accessible.
Available on Android	Ability to download in Google Play.



Available on Apple Ability to download in App Store.

Available in Microsoft Ability to download in Microsoft store.

#### Patient level fields

Test results Ability to include results from any clinical test.

Ineffective medicines Ability to record information on medicines taken that have not worked.

#### Medicine level fields

Times medicines are taken Ability to record the exact times the medicines are taken, e.g. 8 am.

Medicine start date Allows input of medicine start date.

Medicine end date Allows input of medicine end date, duration or provides 'continuously taking' option if life-long.

Review dates Ability to record medical review dates e.g. doctor appointments.

Medication pictures Ability to add a picture of the medicines taken.

Side effects Ability to record medicine specific side effects.

Adding patient information leaflet Availability of a section to add a patient information leaflet as a separate document.

Reminders to take medicines Ability to set a reminder to take medicines at multiple times for multiple medicines.

Reminders to reorder medicines Ability to set a reminder to reorder medicines, based on when the current supply finishes.

\*Drop down list of medicines Ability to allow user to choose from a list of medicines

\*We tested this feature 3 months after the other features. We were only able to test it on 100 tools as three Apple apps were no longer available