

Patient and healthcare professional insights of home- and remote-based clinical assessments: a qualitative study from Spain and Brazil to determine implications for clinical trials and current practice

Supplementary Material

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Supplementary Material S1. Script for professional interviews on in-house and remote tests

Dr(a) (name):

Good morning / afternoon Mr. [xxxx]

As you already know, we are carrying out a study that aims to understand the preferences of patients in conducting clinical trials at home and remotely, especially exams / tests carried out in the context of clinical research.

Your opinion as a professional is very useful to us and will be taken into account when drawing conclusions about the preferences of patients undergoing PMD / PMR and the projects that may arise from this research.

For this interview, we have prepared a script that will help us to go deeper into specific aspects that interest us. We will try to go deeper into the difficulties, advantages and opinions about material and technical aspects of the tests, as well as aspects related to the patients' experience with this type of test. For this, the script is divided into groups of interventions.

We estimate that the interview will take approximately 45-50 minutes. If you have no doubts, we may start the interview.

INITIAL CONSIDERATIONS

1. We will use the following acronyms:

A. PM for diagnostic tests.

B. PMD to discuss in-house tests.

C. PMR to refer to remote tests.

2. There is not enough scientific literature related to medical exams in patients' homes, which

means that there is not a broad conceptual framework in the scientific field to support us in the construction of the interview guide.

3. There is an extensive body of scientific studies on home hospitalization, but not PMD/PMR. We can extrapolate some questions for the construction of this script, but we had to do it very carefully, as we started from the hypothesis that they are not similar experiences.

4. This series of interviews with professionals dedicated to carrying out the PMD / PMR, together with the documentary research, represents a starting point for the expansion of scientific data on the subject.

5. Following the logic of an in-depth interview, the questions that make up the script do not intend to find an answer only to the questions asked explicitly, but rather to seek the involvement of the interlocutor and the emergence of new discoveries.

6. All questions in this script will be asked during the interviews, and a “reflective question” may be added, if the researcher deems it appropriate.

7. The text in black corresponds to the questions that will be asked directly to the interviewee. The texts in blue are notes for the interviewer, which help to explore and delve into certain moments in the interview.

8. It is important to differentiate a medical appointment from a diagnostic exam, as the latter necessarily presupposes a measurement. A medical appointment is understood as one in which the health professional (the physician in this case), interacts with the patient, performing anamnesis, physical examination, and discussion. A diagnostic test can be performed by a third party and the doctor only sees the result. This differentiation is important because the role of the physician is different in these two situations.

1. CONTEXT

First of all, we would like to understand a little bit about the situation of distance assistance at national level.

- We imagine that, in view of the pandemic, the number of home exams and/or remote exams has increased, is that right?
- After the pandemic, do you think the number of home and/or remote exams will continue to increase or will be reduced? Why?
- At what times is the exam generally considered to take place at home? What factors play an important role in the decision? (geographic area, patient age group...)
- What is the current role of home and/or remote testing in the context of clinical research?
- Is there a difference between performing home examinations in a normal health setting and in a clinical research setting?

2. HEALTH PERSPECTIVE

- From your point of view and in general, what are the benefits of performing diagnostic tests at home?
- Are there any diagnostic tests that are easier to perform at home? Which? Why? Pay attention to the different types of exams: sample collection, procedures, vital signs, questionnaires and scales
- Is there any diagnostic test whose performance involves greater risks or presents more barriers in the home environment? If yes, which ones and why? Pay attention to the different types of tests: sample collection, procedures, vital signs, questionnaires and scales.

- What does the use of medical devices outside hospital or health care facilities mean for professionals?

- What does it mean to you, as an expert, to adapt these home and/or remote exams?

2.1 COLLECTION OF SAMPLES IN HOME TESTS

Now let's ask you some questions about collecting blood, urine, stool, saliva, etc. samples.

- At what time/circumstances is it decided that this type of examination will be performed at home?

- How does the patient feel that these types of tests should be performed at home?

(Emotionally, socially, professionally, etc.) Do you detect any patient profile in this regard?

- Can you tell us a little about how these tests are prepared?

- What should the patient do in each of them?

- Do patients generally follow instructions given to them? If they generally fail to comply, what are the reasons for non-compliance? Are some of them related to the typology of the house?

- Are there any concerns or barriers for patients to perform this type of PM at home?

- What are the barriers that professionals face when carrying out these PMs at home? Specify who is speaking whether the doctor or the nurse.

- What are the advantages you find from taking this type of test at home? Explore advantages for the professional and for the patient (from the professional's point of view)

2.2 HOME MEASUREMENT OF VITAL SIGNS

Now let's focus the conversation on home exams and/or remote exams on measuring vital signs (Blood pressure, body temperature, heart rate, weight and height, etc.)

- When and under what circumstances is it decided that this type of examination will be carried out at home?
- How does the patient feel that these types of tests should be performed at home?
(Emotionally, socially, professionally, etc.) Do you detect any patient profile in this regard?
- Could you tell us a little about how to prepare for a PMD / PMR? (From preparation of the material to arrival at the patient's home).
- Can this type of test be performed remotely? If so, when can this be done remotely and when is it discouraged?
- Since the professional arrives at home, can you tell us about the consultation for this type of PM? Are there notable differences in the progress of the consultation?
- In case of taking the tests at home, which type of professional would be the most suitable?
Explore if it is the doctor, nurse, assistant, other.

2.3 CARRYING OUT OF HOME/REMOTE CARDIOLOGICAL TESTS

Now let's talk specifically about exams like ECG, MAPA etc.

- At what time/circumstances is it decided that this type of examination will be performed at home?
- How does the patient feel that these types of tests should be performed at home?

(Emotionally, socially, professionally, etc.) Do you detect any patient profile in this regard?

- Could you tell us a little about how to prepare for a home exam and/or remote exams (From preparing the material until arriving at the patient's home).
- Once at the patient's home, how is the consultation/care with the patient? Is there a lot of difference according to the health test performed? (Pay attention and ask the questions based on the answers from the previous section: PMD what other barriers represent).
- How is the test interpretation performed? Does the provider receive any training to effectively interpret the test?

3. GENERAL PATIENT EXPERIENCE

- How do home exams and/or remote exams benefit patients? Do they have any positive implications in everyday life? Pay attention to the answer to delve into the questions raised by the respondent.
- What are the difficulties for patients who undergo diagnostic testing at home (also explore the remote option)? How do you usually manifest about these barriers?
- Where do patients go to ask their questions about the process of diagnosis or follow-up by home exams and/or remote exams?
- Are patients often involved in the decision to be tested at home? If so, how are they included in this decision? If not, why is this happening?
- How are patients informed (educated) about the process to be followed for conducting home and/or remote testing? Through which channels (emails, web platforms, etc.)?
- From your point of view, do you think that patients have sufficient information about the

process to be followed for carrying out the home and/or remote examinations?

3.1 HOME DELIVERY OF MEDICINES

- We imagine that, given the pandemic, the number of cases in which the drug was delivered at home has increased. Do you think this will be maintained after the pandemic? Why?
- In which cases (situations) is medication being delivered at home? Who makes the decision?

Explore the profile of the patients it is delivered to at home and the reasons why it was decided to do so.

- What information is provided to patients about the home delivery process and the medication being given?
- Are there any situations in which professionals have to carry out the treatment at home (intravenous, intramuscular, people with disabilities)?
- Do patients express any resistance to this type of application at home? What are these resistances generally?
- Do patients demonstrate that they benefit from receiving their medication at home? What are the benefits they claim to experience?

3.2 IN-HOUSE TESTS

- What does the home exam mean for patients?
- Are there any exams that the patient prefers to perform at home due to the particularities of the process?
- What are the concerns that patients express before the time of having home

examinations/home visits/or remote examinations? What concerns do you feel during the home exam? What concerns do patients show after undergoing home exams?

- Are family members, caregivers or close associates generally involved in this process? In which cases do they do it (type of disease, patient age, geographic variability, degree of dependence, etc.)? How do they usually do it?

3.3 REMOTE TESTS

- What does it mean for the patient not to have a doctor present during the test?
- What does the patient assume about data being collected remotely?
- What kind of information or training does the patient receive in dealing with the devices and performing the exam itself? Do they have any assistance or assistance from a distance during the exams?
- What kind of information/training (before/during/after the remote exam) is necessary or important for the patient to receive? Is it different from what is needed for in-home exams collections?
- Are family members, caregivers or close associates generally involved in this process? How do they do it? If they respond that they are involved or should be involved, do they receive any training or information to assist in the process?
- What questions or concerns do patients have before, during and after the exam? Through which channels (phone, email, chat, app, etc.) can they speak up?

4. CLOSING

How do you see the future of in-house testing?

- Of the barriers we've seen (we can cite some that were collected), which are the most urgent to address?
- In response to these most pressing barriers, are you currently working in any way to address them? (Technologies, procedures, etc.)

Supplementary Material S2. Script for patients who perform in-house and remote tests

Mr/Mrs: xxxxx

Good morning / afternoon Mr/Mrs. [xxxx]. As you already know, we are in a study that aims to understand the preferences of patients when conducting clinical exams at home and at distance, especially exams carried out in the context of medical research (clinical research). This study was requested by the pharmaceutical laboratory Servier.

Your opinion as a patient is very helpful to us and will be taken into account as we draw conclusions about the preferences of patients undergoing home exams/remote testing and the designs that can be derived from this research.

To clarify, home exams are those that health professionals perform at home, while remote exams are those that you perform yourself and whose results you store and notify the professionals (either automatically, digitally, or verbally in consultation).

As remote tests, we also include those tests where you collect (eg urine or faeces) a sample that you take to a center (hospital, clinic, health post, etc.) or that you have them picked up later at home.

For this interview, we have prepared a script that will help us to go deeper into specific aspects that interest us. Basically, we will try to go deeper into the difficulties, advantages and opinions about the material and technical aspects of the exams, as well as aspects related to the patients' experience with these types of exams.

We estimate that the interview will take approximately 45-50 minutes.

If you have no questions, we may start the interview.

INITIAL CONSIDERATIONS

1. We will use the following acronyms:

A. PM to refer to diagnostic tests.

B. PMD to discuss in-house tests.

C. PMR to refer to remote tests.

2. There is not enough scientific literature related to exams in patients' homes, which means that there is not a broad conceptual framework in the scientific field to support us in the construction of the interview guide.

3. There are many scientific studies of home hospitalization, but not home examinations/remote examinations. We can extrapolate some questions for the construction of this script, but we had to do it very carefully, as we started from the hypothesis that they are not similar experiences.

4. This series of interviews, together with the documentary research, represents a starting point for the expansion of scientific data on the subject.

5. Following the logic of an in-depth interview, the questions that make up the script do not intend to find an answer only to the questions asked explicitly, but rather to seek the involvement of the interlocutor and the emergence of new discoveries.

6. All questions in this script will be asked during the interviews, and some "extra questions" may be added if the researcher deems appropriate.

7. The text in black corresponds to the questions that will be asked directly to the interviewee. The texts in blue are notes for the interviewer, which help to explore and delve into certain moments in the interview.

8. It is important to differentiate a medical appointment from a diagnostic exam, as the latter necessarily presupposes a measurement. A medical appointment is understood as one in which the health professional (the physician in this case), interacts with the patient, performing anamnesis, physical examination, and discussion. A diagnostic test can be performed by a third party and the doctor only sees the result. This differentiation is important because the role of the physician is different in these two situations.

1. INTRODUCTION

- *Does your insurance offer the possibility to take a test at home?*

If you answered yes: Which one? How were you informed of this possibility?

If you answered no: Are you sure or not?

If you use public health:

- *Have you ever considered that public health can carry out exams at home? Because you think like that? Have you already been offered the possibility of having a home exam?*

If you answered yes: Which ones ? How were you informed of this possibility?

If you answered no: Are you sure or not?

If you use private health:

- *Have you ever considered that private health can carry out exams at home? Because you think like that? Have you already been offered the possibility of having a home exam?*

If you answered yes: Which ones ? How were you informed of this possibility?

If you answered no: Are you sure or not?

2. DIAGNOSIS

- *Can you tell us a little about your or your diagnoses?*
- *How it all began?*
- *What were the first symptoms?*
- *At what point did you decide to go to the doctor? Why?*
- *Which specialist made your diagnosis?*
- *Can you tell us about the diagnostic period? Explore times, exams and experts.*
- *What has this period of diagnosis meant to you?*
- *Considering the diagnostic tests you took, do you remember what they were?*

List and analyze one by one: Collection (blood, urine, feces, saliva, etc.), Procedures (ECG — electrocardiogram—, ambulatory blood pressure measurement, etc.), Blood pressure, Body temperature, Heart rate, Weight and height

- *How were these exams performed: at home or at the health center? Explore how each of the exams was taken:*

- home delivery only (of the material for the test)
- home delivery and usage explanation
- home delivery and administration (full procedure)
- delivery and collection at home

- Delivery and reporting of results.

- Which of these exams were the hardest for you to handle? For what reason?

If you DID NOT HAVE any home/remote exam:

- Would you like some of the exams to have been done at home? Which? Why you think like that?
- Provided information about the possibility of taking the exams at home or remotely? What information did they give you? Explore if that was enough; doubts, fears and barriers that arose.
- How do you think it would have helped if these tests were done at home?
- What questions do you think would have arisen if these exams had been done at home? Who would you have turned to resolve them?
- Let's try to put ourselves in a situation, what would worry you the most if these exams were done at home? Present each of the exams that were mentioned.
- Can you tell us what you think it would be like if these tests were done at home?
- Currently, if given the opportunity, would you like the exams to be taken at home? Which?

If you HAVE DONE exams at home:

- How was it decided that exams should be done at home? Did you request them?
- Who informed you that the exams would be done at home?
- What questions did you have when you were told these exams would be done at home? Did you get your questions answered? As you did? Explore channels and people.
- What information did they give you about this type of test? Explore channels and people.

- *What did you think about these exams being done at home? Why?*
- *How did having these exams at home help you in your daily life? [Explore the positive effects.](#)*
- *Do you think it harmed you in any way to take the exams at home? Why?*
- *Can you tell us how these exams were performed? [Explore from the call to the receipt of the result.](#)*
- *Was your family involved in the process? If yes, how? What information did your family or surroundings need to deal with the home exam?*

[If you DID remote exams:](#)

- *How was it decided that the exam should be taken remotely? Did you participate in this decision?*
- *Who told you the exams would be done remotely?*
- *Did you have any questions about remote scanning? Which was? Did you get your questions answered? How did you do it? [Explore channels and people.](#)*
- *What information did they give you about this type of exam? [Explore channels and people.](#)*
- *What did you think of these exams being performed remotely? Because you think like that?*
- *Do you think taking these exams remotely has had a positive effect on your daily life? [Explore the positive effects.](#)*
- *Do you think the remote examination was harmful to you in any way? Why?*
- *Can you tell us how these exams were performed? What did you have to do? How did you do it? What problems did you encounter? [Explore from scheduling to receiving the result.](#)*

**** If no information about barriers is mentioned, explore:**

- *Would you say you had any difficulties during the diagnostic testing process?* Investigate at different times: from scheduling to receiving the results (and other times, if any).

3. FOLLOW UP

- *What or what treatments have been prescribed?*
- *How do doctors monitor your illness and treatment?*
- *Who does the follow-up?*
- *How do you carry out this follow-up?* Explore different monitoring channels. We can exemplify follow-up through face-to-face consultation, teleconsultation (telephone or video call, app, web platform, etc.).
- *Do you undergo any type of diagnostic test to carry out this follow-up? Which ones?*

List and review one by one:

- o Sampling (blood, urine, feces, saliva, etc.);
- o Procedures (ECG —electrocardiogram—, ambulatory pressure measurement; blood pressure, etc.);
- o Blood pressure;
- o Body temperature;
- o Heart rate and
- o Weight and height

- *Where are these exams performed?* Explore whether they are at home or in a health facility or hospital.

If you had a follow-up exam at home:

- *Who decided that this exam should be performed at home? Did you request it? For what reason?*
- *How was the procedure for the exams you performed at home? Explore how each of the tests was done:*
 - home delivery only (of material for testing)
 - home delivery and usage explanation
 - home delivery and administration (full procedure)
 - home delivery and collection
 - home delivery and reporting of results.
- *What does it mean for you to take these exams at home?*
- *What are the benefits of this type of exam for you?*
- *Are home exams inconvenient for you? Do they have any negative effects on your daily life? Which?*
- *Do you prefer these tests to be performed at home, at the hospital or health clinic? Why?*
- *What do you value most about home option?*
- *What information did they give you and your surroundings about home testing? How did you get this information? Was it enough for you? And for your surroundings?*

- *What doubts did you have when you were going to do this type of exam?* Ask about doubts in each of the phases (booking, waiting, examining, waiting for results, receiving results, transporting the sample, etc.).
- *Who did you look for to solve these doubts? Through which channels?*
- *Which health professionals did you deal with during the process (consultation, exams, receipt of results...)*
- *How was the relationship with each of these professionals?* Investigate the relationship established with each of these professionals.
- *Thinking about the professionals who came to carry out the exams, would you prefer them to be doctors, nurses or some other professional?*
- *Thinking about taking the exams, can you tell us a little about that moment?* Explore from the moment the nursing team arrives until they leave: fears that afflict you, ideas that hang around your head, doubts, actions of health professionals that generate uncertainty, information about what was asked, etc.
- *Thinking about your experience with home exams, would you like more exams to be carried out in this way in the future? Do you prefer to go to the hospital?*
- *Are there any tests you would have preferred to have at the hospital? Which? For what reason?*

If you DID follow-up exam remotely:

- *What tests have you done remotely?*
- *Have you used any remote test tracking apps?* Explore advantages and disadvantages.

- *For the use of the app or for taking the exams, have you received any training to use it? How was this training? Explore channels, professionals, and type of service.*

- *Any questions not clarified during training? Which?*

- *What difficulties have you experienced in taking measurements? How do you solve them? Do you think you have enough help? Why?*

- *Do you have any concerns at any time during measurements? Explore different moments of pre-measurement, measurement and measurement sending.*

If you DON'T HAVE any follow-up exams at home:

- *Have you ever heard of the possibility of having these exams done at home?*

- *Would you be interested in taking a follow-up exam at home? Why?*

- *What benefits do you think it would have for your daily life?*

- *Do you think home exams can have a negative effect on you or your surroundings? Which? Because you think like that?*

- *What would you most value in a home option?*

4. PRESCRIBING AND REMOTE DRUG DELIVERY

- *Have you ever received any treatment remotely? Explain what the procedure consists of: that they have prescribed a drug and explained its characteristics, administration and effects through remote channels.*

If the answer WAS YES:

- *How was the procedure for you? Did you understand well all the information they gave you?*
- *Did you have any questions? How could you solve it? Explore channels, healthcare professionals and other features.*
- *How satisfied are you with this procedure? Why?*
- *Has your medicine ever been delivered to your home?*

If the answer is YES:

- *Whose decision was it to send these medications to your home? Did you participate in this decision? Do you know what aspects were taken into consideration when evaluating the option of this home delivery? If the person requested home delivery, by what means did they request it (email, telephone, in person, etc.)?*
- *Can you tell us what you had to do to get the medications delivered to your home?*
- *What documentation did they send you? Through which channels?*
- *What are the advantages of this process?*
- *What are the main disadvantages?*

If the answer was NO:

- *At what point do you think you would need the medications to be delivered to your home? Why?*
- *Do you know if you have the possibility to request it? Did you request the delivery of medication to your home? If you requested, why didn't they accept your application?*
- *How do you think home delivery of medications would have influenced your daily life?*

5. CLINICAL TRIALS

- *Have you ever participated in a clinical trial?*

If you ALREADY participated:

- *Which clinical trial did you participate in? What did it consist of?*
- *What kind of assessment exams were taken? Were they done at home or remotely?*

If you answered that you HAD a home exam in a clinical trial setting:

- *Was the fact that the exams could be performed at home an incentive for you to participate in the trial? Why?*
- *Who decided that this exam should be done at home? Did you request it? For what reason?*
- *Can you tell us about these exams? [Explore from scheduling to receiving the result.](#)*
- *What does it mean to you to have these exams at home?*
- *What are the advantages of this type of exam for you?*
- *Are home exams inconvenient for you? Do they have any negative effects on your daily life? Which?*
- *What do you value most about the option of having the exam at home during a clinical trial?*
- *What information have you been given to your surroundings about home testing? How did you get this information? Was it enough for you? And for your surroundings?*
- *What questions did you have when you were going to take this type of test? [Ask about doubts in each of the phases \(scheduling, waiting, exams, waiting for results, receiving results\).](#)*

- *Who did you look for to resolve these questions? Through which channels?*

If you answer that you have NOT performed an exam at home or remotely in a clinical trial:

- *Would it have been an incentive for you to participate in the study if the tests had taken place at your home? Why?*
- *Have you been informed about the possibility of having a test done at home?*
- *Would you have chosen the option of taking the exams at home if you could? Why?*
- *What benefits do you think it would have for your daily life?*
- *Do you think home exams can have any negative effects on you or your surroundings? Which? Why do you think that?*
- *What would you most value about the option to take the exams at home?*

**** If no information about barriers is cited, explore:**

- *Would you say that you experienced any difficulties during the diagnostic testing process for the clinical trial? Investigate at different times: from scheduling to receiving exams (and other times, if any).*

6. ADMINISTRATIVE PROCEDURES, SHIPMENTS AND BILLING (IF YOU HAVE PERFORMED HOME OR REMOTE EXAMS)

- *We talk about your experience with diagnostic tests. Finally, we want to talk a little about the procedures you had to go through to have these exams carried out.*
- *Through which channels did you receive informed consents? Did someone explain this documentation to you?*

- *In addition to consents, what information did you receive? What other information did you need to fill in? Through which channels (in person, phone, online, etc.)? [Explore how he did it.](#)*

- *What did you think of the administrative process? What would change? Why?*

- *What were the biggest difficulties you faced during administrative procedures?*

[In case it has been tested remotely](#)

- *How did you receive the materials for taking the exam? Who brought you? Did you receive any informative document with the materials? Did you have to fill out any documents? Which?*

- *Can you explain a little bit about the procedure you had to follow to send the sample? Who did you have to inform that the sample was collected/ready? Through which channels did you do this?*

- *Was the sample submission process difficult for you? Why you think like that?*

- *What did you find most comfortable in this process?*

- *[If you have to send data or results remotely](#), through which channels did you communicate the results (Did you call healthcare professionals, app, web, email, etc.)?*

- *What difficulties did you experience during submission?*

- *How did you confirm the arrival of results?*

- *What questions did you have at the time of submitting these results?*

7. CLOSURE

- *As a patient, how do you see the future of home exams?*

- *Of the barriers we've seen, which are the most urgent to resolve?*