Feedback from the Imperial BRC Public Advisory Panel on an NHS platform for interpreting liver biopsies from patients with Non-Alcoholic Fatty Liver Disease using Artificial Intelligence: 16.02.21

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Background

On 21 January 2021, Dr Penni Manousou presented her proposed research plans for an NHS platform for interpreting liver biopsies from patients with Non-Alcoholic Fatty Liver Disease using Artificial Intelligence to members of the Imperial BRC Public Advisory Panel (Panel) via an online Zoom meeting.

Session Structure

The structure of the session was as follows:

- Introduction by Dr Penni Manousou to the plans for an NHS platform for interpreting liver biopsies from patients with Non-Alcoholic Fatty Liver Disease (NAFLD) using Artificial Intelligence.
- Q&A (see **Appendix 2)**
- Panel members were asked to answer the following questions:
  - *What are your overall thoughts about the use of this Artificial Intelligence platform/tool in clinical practice?*
  - *What concerns or questions might you have as a potential patient or family member?*
  - *Do you have any suggestions of how we involve patients and the public across the 3-year period of this project?*

Payment

In accordance with NIHR payment guidance, Panel members were paid for their time in accordance with NIHR payment guidelines including a £5 contribution to Wi-Fi/data for accessing a virtual meeting.

Summary of Key Insights

This following is a summary of the themes identified in breakout room discussions, more details of which are set out below in **Appendix 1**.

Overall thoughts on the use of the Artificial Intelligence platform in clinical practice

Panel members were **generally supportive** of the use of Artificial Intelligence in healthcare generally and in this project in order to permit more objectivity and get results faster as well as to save the NHS money. However, it was noted that it was unfortunate that an **invasive procedure** had to be undertaken before Artificial Intelligence could be utilised in this example. It was considered there was a need to **understand the morbidity and mortality of NAFLD and the risk of liver biopsies** to fully understand the value of the proposed platform. The potential for an **early diagnosis** of NAFLD was seen as beneficial if it would motivate a change in lifestyle. One panel member was concerned about **potential bias** within the system if the Artificial Intelligence is only going to learn from input into the system by clinicians.

Possible concerns from point of view of patient/family member

The following potential concerns were identified by panel members: **how accurate the Artificial Intelligence platform is** at determining diagnosis and disease stage in comparison to liver experts' and if there are **any other options** for determining diagnosis and disease stage and how their

accuracy compared to Artificial Intelligence; whether the project had been reviewed by an **ethics committee**; implementation of **data security** aspects; and **whether there would be acceptance of the result being determined by Artificial Intelligence** although the fact of its objectivity may assist.

Suggestions for involving patients/public in project

Suggestions by panel members for involving patients/public in the 3-year project included involving **non- NAFLD affected public and those at risk of NAFLD** as well as those with lived experience. **Carers and those from diverse backgrounds** should also be included. Their involvement should be **from the outset and throughout all the stages of the project** including at the dissemination stage and one suggestion was to involve people in evaluating [biopsy] slides of people with NAFLD after being given training. The inclusion of a **Steering Committee of patients and the public** was recommended who could be kept informed about the research and have opportunities to sense-check and advise the research team. People to involve could be **recruited through weight loss groups** and recruitment should involve the **use of clear and specific language to explain Artificial** Intelligence and **training should be provided**.

How we used the insights

This insight report summarising key points from the session was made available to Theme leads and the BRC Executive in order to shape the BRC application. The report was also provided to the Panel members who took part in the involvement activity. A full report on all public involvement activities undertaken in preparation for the BRC application can be found [here.](#)

We would like to thank all those members of the public who gave their time and thoughtful insights through these activities, and the researchers who engaged enthusiastically in the process.

16.02.21
Patient Experience Research Centre

Appendix 1: Questions/clarifications about the study asked by Panel members
Breakout room discussions

Whilst in breakout rooms panel members were asked to respond to three questions. The details of their responses are summarised in themes below.

1. **What are your overall thoughts about the use of this Artificial intelligence platform/tool in clinical practice?**
   The following comments (which have been themed) were made in response to this question.

   Positive support for the use of AI in healthcare
   - One panel member agreed that AI was the way forward in healthcare and can see the benefits of helping to assess risk (which is currently a very subjective from clinicians) and also to help patients faster and better
   - Another panel member was overall positive and understood that everything was moving towards digital health – they felt that this was most valuable as it was potentially going to save the NHS a lot of costs.
   - Impressive
   - Great idea, it is just a shame an invasive procedure with potential risks needs to be done beforehand.

   Understanding of morbidity and mortality of NAFLD needed
   - Would be easier to understand the value of the platform with a clear understanding of the morbidity and mortality of fatty liver disease, as well as the risks of liver biopsies.

   Value of early diagnosis on lifestyle
   - One panel member queried whether the value of early diagnosis through the platform will be demonstrated if individuals find it difficult to change their lifestyle to prevent further damage. It was agreed that having numbers and a clear explanation from the AI platform to show disease progression etc. could also motivate people to change their lifestyle more.

   Potential bias
   - One panel member was overall supportive but concerned about potential bias within the system if it is just going to learn from what is input into the system by clinicians. It was agreed that it was important to not have any cut-offs/boundaries on what can be inputted which could bias the programme.

2. **What concerns or questions might you have as a potential patient or family member?**
   The following comments (which have been themed) were made in response to this question.

   Accuracy of AI compared to an expert
   - One panel member highlighted that they would want to know how accurate the AI platform is at determining diagnosis and disease stage in comparison to liver experts' accuracy.

   - Would want to know if there are any other options available to patients currently to determine diagnosis and/or stage of NAFLD (preferably a non-invasive test, e.g. a scan) and how that might compare with accuracy.

Ethical review
- Has this project gone through an ethics committee?

Data security
- Concerns about implementation of data security.

Acceptance of AI as a tool in healthcare
- Some may not accept that the result may rely on AI but could be assisted by the fact it is more objective.

3. Do you have any suggestions of how we involve patients and the public across the 3-year period of this project?
   The following comments (which have been themed) were made in response to this question.

Include non- NAFLD affected public and those at risk
- The panel suggested that it should not just be individuals who have NAFLD that should be involved in the project and the opportunity to be involved should be opened more widely to the public
- A focus group with a wide group of patient and public contributes who are interested and understand the project to help you and the research team concentrate on issues that affect the patients who might be impacted by this project.
- Consider involving people who are at risk of NAFLD, not just patients who have already developed liver disease. As preventing this disease is equally important.

Involve carers of those affected
- Important to have a carers perspective in your public involvement activity, for instance on the steering group.

Involve people from diverse backgrounds
- Be inclusive and involve a diverse group of people.

Involve public from the outset and throughout the research
- Patients and public should be involved right at the very start.
- Consider how you can involve the patient and public members involved throughout your project at other stages, for instance contributing to your report/papers, presentations at conferences.
- Patients should be involved at all stages, both those with liver disease and those without. May be able to assist in evaluating [biopsy] slides of people with NAFLD after training.

Inclusion of a Steering Committee
- One panel member suggested the development of a steering committee which involves patients and public which could be kept informed and have opportunities to sense-check and advise the research team.

Recruit through weight loss groups
- A good focus to recruit potential patient and public contributors could be through weight loss groups as there may be an encouragement and preventative element.

Use clear and specific language to recruit people

- When you are advertising your study to potential patient and public members to be involved, it was suggested that a clear and specific explanation of the AI technology involved is provided. The general public have lots of different ideas of what AI is and what it can do, so it would be helpful to provide a practical simplistic explanation of the technology being used.

Provide training to those you involve
- Any patient and public contributors that you involve will require some training to help them contribute in the most valuable way to your project.

Appendix 2: Questions/clarifications about the study asked by Panel members

- Has the AI Deep Learning Programme already been designed? What stage is the project at?
- Can you explain more about the NHS platform and how the platform would be used?
- How many biopsies have been pulled into the programme already for the validation?