



# A Qualitative Study to Understand Patient Perspective on the Use of Artificial Intelligence in Radiology

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In collaboration with:

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A Qualitative Study to Understand Patient Perspective on the Use of Artificial Intelligence in Radiology. *Journal of the American College of Radiology*.  
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# Background

Artificial Intelligence in Radiology (Hosny et al., 2018; Jiang et al., 2017)



# Background

Patient perspective?



Cat Scan

# Methods

- **Data collection**
  - Summer 2018 (10 random days) at Radiology dept. UMCG
  - Purposive sampling
    - Selection criteria: scheduled for a CT scan of the chest and abdomen on an outpatient basis.
  - Semi-structured f2f interviews after CT scan
  - 5 euro incentive voucher after interview

# Methods

- **Tools**
  - Topic list
  - Dilemmas used as elicitation method



"Who was first?"

# Methods

- **Our data**

- 20 semi-structured f2f interviews
- 9 women, 11 men (mean age: 63.8; range 39-79; SD: 12.1 years)
- Sometimes in the presence of relative or partner

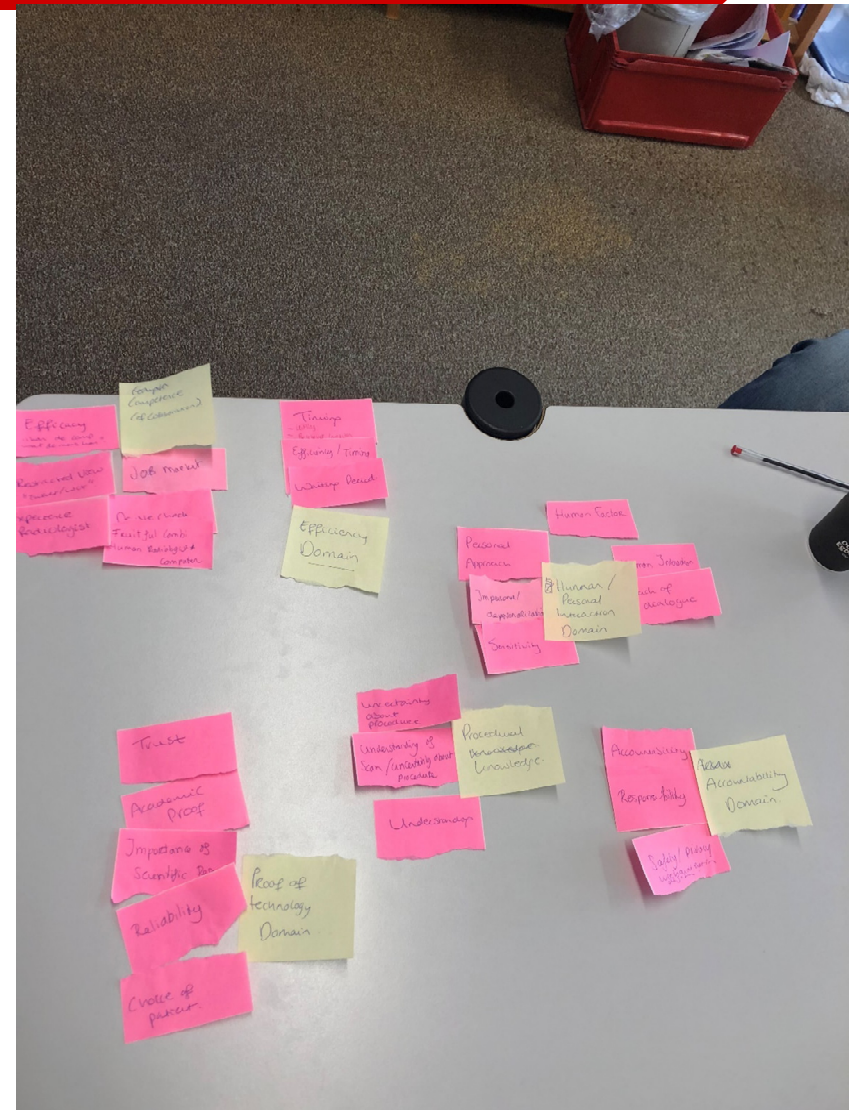
# Methods

- **Analysis**

Based on grounded theory approach:

- Open coding
- Categorization open codes into themes
- Defining key domains

- **Trustworthiness** in qual research  
(Lincoln & Guba, 1985; Shenton, 2004)



## Results



### **Domain 1: Proof of technology**

*Well, then you would have to do years of research into whether the computer sees more than a human being. And especially the interpretation. Because otherwise, look, a radiologist indicates an enlargement in that lymph node, or that adrenal gland, or there is something in the liver. Or thinks that's a strange structure. But, scan after scan there is no change compared to the previous scan. Can a computer assess that too? (participant no. 9)*





## Results

### **Domain 2: Procedural Knowledge**

*How does this work? Would you get the results on paper? I mean, now you get the results physically, someone tells you what's what. I think, assuming it's really serious, and then you will get the results via e-mail and there you read what's what [shakes head]? (participant no. 6)*

## Results

### **Domain 3: Competence**



*Look, a doctor may be able to see and feel things differently, based on his own experience. This cannot be seen by a computer.  
(participant no. 19)*

# Results

## Domain 4: Efficiency



*Yes, yes. Yes having such a time between the doctor and the patient, delay. At least, in my case too. There are three to four weeks in between. If there had been a robot that immediately had the result. Because now it is not immediately assessed, because even here it takes another week. (participant no. 8)*

## Results

### **Domain 5: Personal Interaction**



*I would like to get the results personally, to have some feedback and ask questions. (participant no. 10)*

## Results

### Domain 6: Accountability



*Yes, but that is just like with those self-driving cars; a computer can make mistakes, but a person can also make mistakes. But if a computer makes a mistake, you cannot discuss it with someone. A person you can just talk to. If at a certain moment it appears that the radiologist has made a mistake or overlooked something, you can say "hey, friend, this is not how we work here, you should have seen that". (participant no. 4)*

# Discussion

## Six domains:

- Base framework to expand upon



## Take home message:

- Clear communication and education necessary
- Ethical issues

## What's next:

- Survey developed and fielded
- Now: Analyzing data – Exploring factors

....To be continued

# Thank you!

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## **Want to know more? Read our paper:**

Haan, M., Ongena, Y.P., Hommes, S., Kwee, T., Yakar, D. (2019). A Qualitative Study to Understand Patient Perspective on the Use of Artificial Intelligence in Radiology. *Journal of the American College of Radiology*. <https://doi.org/10.1016/j.jacr.2018.12.043>

## **Want to know a lot more?**

- Ask for the pre-print of our quantitative paper or lets have a conversation!