Radiologists' Usage of Diagnostic AI Systems – The Role of Diagnostic Self-Efficacy for Sensemaking from Confirmation and Disconfirmation

Ekaterina Jussupow, Kai Spohrer, Armin Heinzl

Appendix (available online via http://link.springer.com)

Appendix A: Interview Guide

The following questions and bullet points were used as a rough structure and guide for the interviews with radiologists. The interviewers aimed to cover the ground outlined by the interview guide but had complete freedom to restructure, rephrase, skip, add and extend questions. Importantly, the interviewers aimed to collect data on the personal reasoning processes of each interviewee. Thus, they personalized and added questions ad-hoc when it became apparent that a topic, issue, or line of thinking was particularly important to the interviewee.

- Consent and Study Purpose
- Demographic information
  - Age
  - Gender
  - Specialty
  - Working years
- Please describe your current position and your professional career pathway
- How much would you agree with the following statements from 1 (not at all) - 10 (completely)?
  - You have a high level of expertise in diagnostics based on CT images.
  - You have a high level of expertise in the diagnosis of stroke-
  - You have high expertise regarding treatment recommendations of stroke.
- Could you tell what SYSTEM is and what it brings to you?
- Think about the introduction of SYSTEM. How did they experience it? Was there any resistance?
- What were your initial fears and hopes? Has any of this been confirmed? How has it changed?
- Could you show us how you use SYSTEM in practice?
- Suppose a patient comes to you in the clinic. What would a typical procedure look like. How do you apply SYSTEM?
- How useful do you find the system overall? How does it help you in your clinical work?
- What do you consider positive and negative about the system?
- Are there any patient cases for which you use SYSTEM regularly? Could you give us an example of this?
- Would you rather classify these cases as easy/ routine or complex? Are there situations in which you deliberately do not use the system?
- What new opportunities arise from SYSTEM that were not available before?
- Is SYSTEM different from other "conventional" decision support software? How can you tell that SYSTEM is based on artificial intelligence?
- Are there any patient cases where you have experienced SYSTEM reaching its limits? If so, could you describe a case?
- Have you already had the case that your opinion as a doctor contradicted the SYSTEM proposal? If yes, could you describe this case as precisely as possible? How did you proceed in this case?
  - How did you deal with the fact that this might be the wrong decision?
  - How do you generally deal with the fact that such systems independently arrive at possible incorrect diagnoses?
- How do you see yourself as radiologist? What role does technology play for your work as radiologist?
- What made you decide to become a radiologist? How did this decision develop?
- Would you make this decision again today in view of the technical development? Why?
- What has changed about your physician role with the introduction of SYSTEM/ Artificial Intelligence?
- Do you think systems like SYSTEM can make better medical decisions than you? Why?

- Do you think systems like SYSTEM can partially or completely replace you as a radiologist? Why?
- In the long run, do you think systems like SYSTEM will give you less autonomy in medical decisions (e.g., legal issues)?
- Do you think that systems like SYSTEM will change the demands on you as a physician from patients and hospitals?
- Do you think systems like SYSTEM will change the importance of medical knowledge?
- Do you think using systems like SYSTEM will change the doctor-patient relationship?
- What do you generally understand by artificial intelligence?
- Has your understanding of artificial intelligence changed as a result of using SYSTEM? If yes, how?
- Do you think artificial intelligence will change medicine? If so, how?
- When you think about how such systems are evolving. How do physicians need to change? What skills need to be developed?