Ethical challenges associated with AI

Åsa Gyberg-Karlsson

eHealth strategist and reg. biomedical laboratory scientist

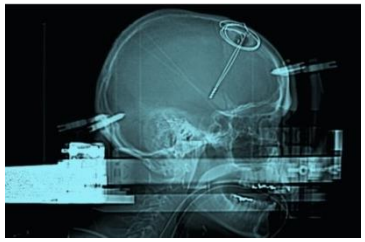
Member of The Swedish National Council on Medical Ethics (SMER)

Statens medicinsk-etiska råd (Smer)

- Is an advisory board to the government and parliament

Main tasks (since 1985):

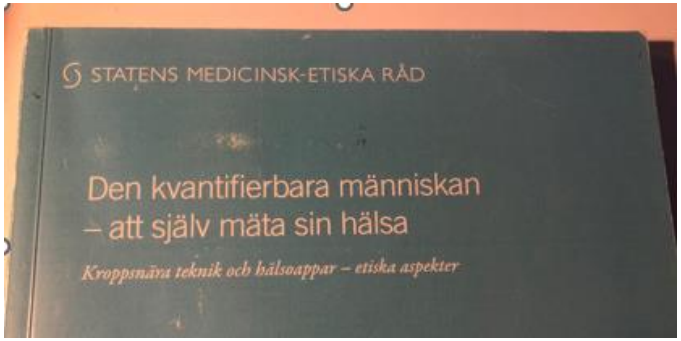
- identify and explore from a societal perspective ethical issues raised by scientific and technological advances in biomedicine
- to serve as a body for exchange of knowledge and opinions on bioethics and serve as a link between science, citizens and policy makers
- to stimulate public debate on bioethics



Composition

- Smer consists of a Chair and eight representatives from the political parties in the Swedish Parliament
- Eleven experts representing:
  - Academic expertise in medicine, law, philosophy
  - Professional and patient organizations,
  - the National Board of Health and Welfare
  - the Ministry of Health and Social Affairs
- The work of the council is supported by a secretariat; three employees
- Administratively, the council is affiliated with the Ministry of Health and Social Affairs.

Publications associated with digitalization and eHealth



Report: The Quantified Human. Ethical aspects on self-monitoring by wearables and health apps.

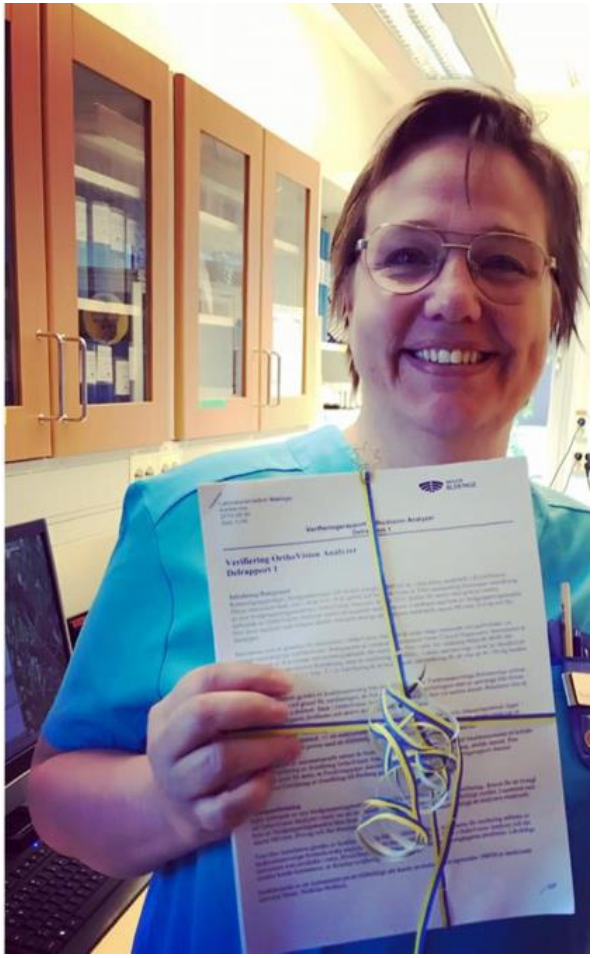
In brief – Health Data

In brief – Artificial intelligence in healthcare

AI and healthcare

- Great expectations
- Can bring benefits for patients, healthcare workers and society
- Technical, legal and ethical challenges

Quality assurance



Dynamic systems create special challenges.

- Which processes must be in place for approval and monitoring?
- How can we assure quality on an instrument with non-transparent technologies such as advanced AI algorithms?

Training data: Risk of errors

An AI algorithm does not learn facts about the world, but facts about the data it has been trained on.

- Need of awareness of when, for what and for whom a certain AI algorithm is useful.
- How is the risk of errors to be balanced against the healthcare benefits that AI can offer?
- Is it´s acceptable that a smaller number of patients risk being harmed if many patients receive better care at the same time? Who is to make such a decision?

Training data: Risk of discrimination

If a health care algorithm learns from a training database in which certain group of patients are under-represented, it can lead to the group running a greater risk of misdiagnosis.

- How do we ensure that the health benefits that AI in healthcare can bring, benefit the whole population?

- How can we ensure that assessments made by AI algorithms reflect reasonable values and do not involve discrimination or inequality?

Photo: Sverker Berggren

Ethics-by-design

- Whose preferences and values will be built into the design of an algorithm used in healthcare?
- Should the ethical code of the healthcare professions be seen as a standard variable for training data?

Different doctors may make different judgements. And patients often have different preferences and different abilities.

- How do we assure the patient´s autonomy and the shift to a more person-centered care?
- Can the possibility to ethical reflection based on the single, certain situation and the specific individuals involved be an option? Will this be a risk for the protection of privacy?

AI as a predictive tool

There are examples both with overestimation and underestimation of risks due to algorithms not "understanding" causal connections.

But even if we can assure non causal biases:

- What consent should be required from the patient?
- How are the patient's best interest from a health perspective to be weighed against the right to refuse care and say no to unwanted health information?
- Individuals with little history within healthcare and therefore with less data in the systems, are less likely to benefit.
- Predictive information could also be of interest to insurance companies and can lead to that certain groups of individuals finding it harder to get an insurance.

BrAIndrAIn


Photo: Sverker Berggren

There is a risk that AI systems will take over the role of the "storage place" of collective medical expertise and thar there will be a skills loss among professionals.

- Risks to patient safety if the systems collapse.
- How do we prepare so brAIndrAIn does not affect the patient safety in crisis?

Responsibility

Higher use of AI in healthcare raises the question of where the legal responsibility should lie if a diagnosis or a treatment recommendation from an algorithm proves to be wrong.

- The healthcare professional?
- The programmer?
- The manufacturer?
- The agency that approved the system?
- The hospital that used it?
- The system itself?
- Shared?'
- AI a "decision assistent", not a "decision maker"?

AI as the decision maker

If AI algorithms by time become even better and incorrect recommendations increasingly fewer.

- Will we reach a point when the professionals are expected to follow a recommendation from an algorithm?
- How will such a scenario affect the perceived value of the professional expertise?
- If the algorithms after all make striking errors: Can this affect the trust not only in AI systems, but in healthcare in general?
- Should there be the right to say no to AI healthcare?

Conclusion

Taking the ethical challenges in consideration shall not be seen as an obstacle, but something that can stimulate and guide the development towards applications that support common goals and values.

- If we can develop an AI that
  - without doubt enhance patient safety and health outcomes
  - support acceptable ethical values

  will it be ethical not to introduce AI to the healthcare system?

Thank you!