Robotics and Autonomous Devices in Health Care
– a Technology Assessment Study –
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Why TA on robots in health care?

Technical devices to replace nursing staff

Nursing staff shortage solved through technology?

ROBOTS AT THE BEDSIDE

Robot in plush to delight residents

Age of Robotic Care for the Elderly?

Toyota enters business with care robots as a reaction to the crisis in automobile market
2012 movie *Robot & Frank* …
... to reality

In view of robotics and autonomous devices in health care:

• What is technically feasible?
• What is socially, ethically and legally desirable and justifiable?
• What is economically and politically achievable?
Methods

- Literature review: types of robots
- Analysis of needs: focus-groups with stakeholders
- Reflection: workshop with experts
- Scenario-development
- Opportunities & risks
- Conclusions & Recommendations
First type: training devices and mobility aids

Exoskeletons
Rehabilitation robots
Second type: telepresence and assistant robots

Transport systems

Service robots

Telepresence robots
Third type: Social-interactive robots

Paro

Pleo
Opportunities for …

Users: autonomy, mobility, independence, assistance, communication

Institutions: effectivity and supplement, new treatments

Society: (partly) compensation of shortage staff, new jobs
Risks for ...

**Users:** loss of direct contact and autonomy, increases isolation, use without consent of vulnerable people

**Institutions:** risk of cost increases, lack of convergence

**Society:** health care costs, need-oriented market-focused technologies
Future scenarios 2025

1. **Reactive politics:** only applications of existing regulations and regulate measures

2. **Proactive politics:** new regulations in law, registration and ethics, etc.

3. **Proactive control politics:** additional regulating measures like research funding, promotion of a discussion of robotics in health care, promotion of societal support
Conclusions

• The spectrum of possible applications of robots in health care is very broad.

• There is a insufficient regulation in liability law, data protection and ethics.

• A proactive and coordinated policy framework is required.

• Robots on their own could not solve the problem of skill shortages in health care.
Key recommendations

• Check and amend issues of liability for robots in healthcare

• Data protection must also be clarified for data that are unrelated to health.

• The Swiss Academy of Medical Sciences SAMS should take into account the effects that the use of robots might have.

• Professional and non-professional users should be included at an early stage.
Publications: Download open access


- Abridged version of the TA-SWISS study: “RoboCare – Healthcare in the robot age” (in English / German / French / Italian)

- www.ta-swiss.ch