



Healthcare robotics – a qualitative exploration of key challenges and future directions

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Usher

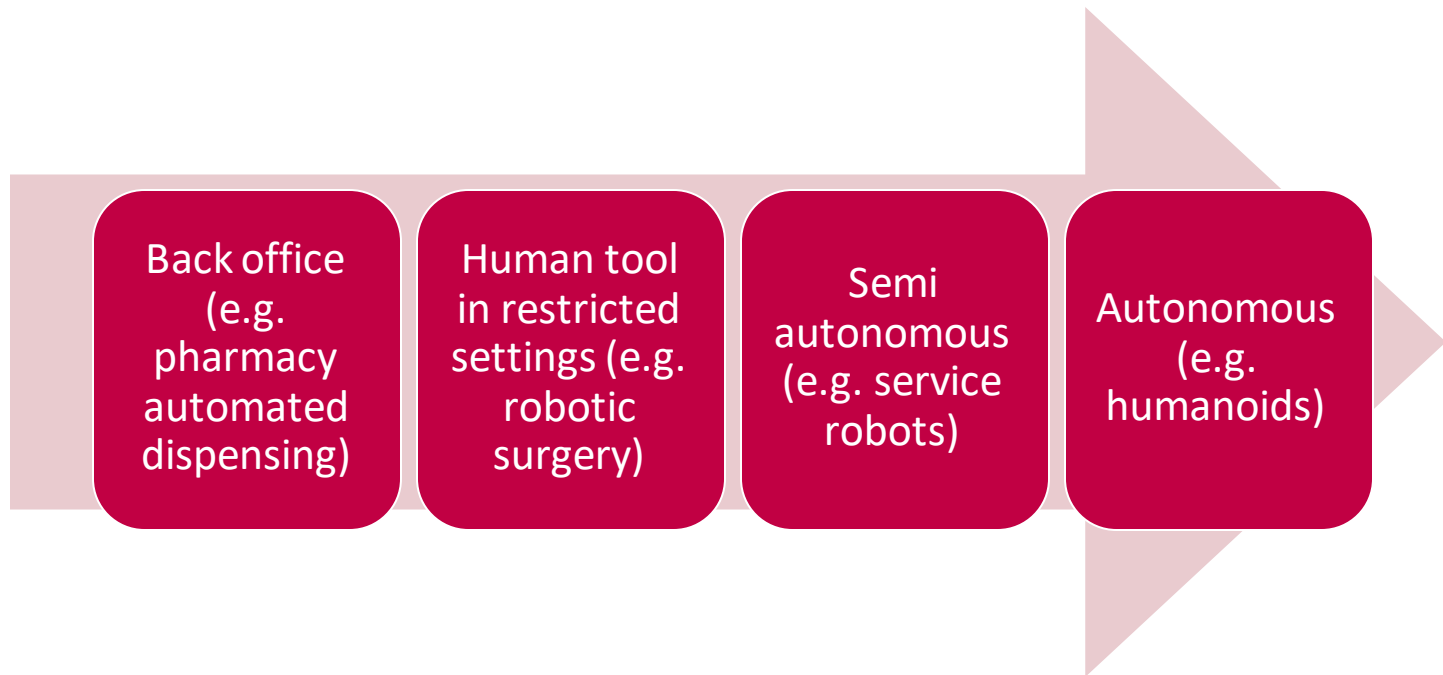


- Newest research institute of The University of Edinburgh, UK (2015)
- Four centres: global health, medical informatics, population health, biomedicine
- 320 staff
- Highly inter-disciplinary
- €15m research grant income/year
- 400 papers/year
- Large UK Health Data Research Hub

**Cresswell K, Cunningham-Burley S,
Sheikh A. Health Care Robotics:
Qualitative Exploration of Key
Challenges and Future Directions.
Journal of Medical Internet
Research 2018 Jul;20(7).**

21 qualitative interviews with international
innovators

Types of robots in healthcare



Findings

Significant opportunities of improving safety,
quality and efficiency

BUT: four major barriers

No clear pull from professionals and patients

- Concerns amongst the public, patients and healthcare staff
- Perceived threats to professional roles amongst healthcare staff
- Patient trust as an aspect of care that was perceived to require human input



....all sorts of doctors...had
kittens about this idea of this
robot that could basically put
them all out of a job. Participant
5, Futurist, U.S., Female



The appearance of robots

- Too robotic - psychological association with death and fear of replacing human being
- Too human – expectations too high

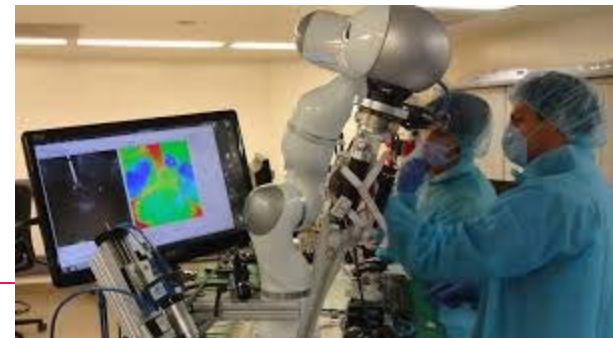
...there's a fear that the robot becomes almost like a near-human [ghostly counterpart] that replaces the human being, because it has capabilities that we don't... Participant 21, Manager, U.K., Female



Changes to healthcare work

- Tension: standardisation through automation versus unpredictable nature of healthcare work
- A tool versus impinging on human professionalism

...this is why robots have been so successful in industry, like in car manufacturing because they have these repetitive tasks and there are no humans in their way. Participant 14, Journalist, U.S., Male



New ethical and legal challenges

- No existing liability and ethical frameworks as rapidly evolving field
- Regulation is key to promote routine use without stifling innovation

There was one lady who got trapped in an elevator together with one of the robots and another one got run over.
Participant 3, Academic,
Norway, Male

Conclusions

- Significant social challenges associated with effective integration of robots in healthcare
- Especially for applications in human-dense environments and autonomous robots
- Important to anticipate challenges and address these (through modifying either technological design or social environments)
- Quick win: back-office not humanoid



