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Purpose

- To get an overview of the social robotics field, its focus in terms of Health and Wellness applications, current issues/challenges in the field, and implications for health policy

Background

- Social robots are complex machines that can interact with humans and with each other
- Social robotics is an emerging field with existing and envisioned applications/products for many sectors including healthcare and education
- Social robots are seen as a possible way to address the human resource and economic pressures on healthcare systems (eg. created by growing elderly populations) [1]

Methods

- Review of social robotics literature
- Used Knowledge Share ver. 2.1.3 (Ksv2), developed by Dean Yergens (<http://people.ucalgary.ca/~dyergens/ksv2.htm>) to systematically review literature.
- Databases: ScienceDirect, Compendex, IEEE, Communication Abstracts, Scopus, OVID(All), EBSCO(All), Academic One File, Web of Science, JSTOR
- 171 articles included out of 489 (include: English, PDF available; exclude: pure technical, conference announcements, books); Kappa factor 0.88
- Used Atlas.ti 6.27 qualitative data analysis software

Table 1. Keyword hits within the literature

Keyword	Number of articles
Health	60
Healthcare	19
Patient	40
Elderly	47
Disability	30
Autism	28
Education	63
Stroke	9
Rehabilitation	21

HEALTHCARE ROBOTS

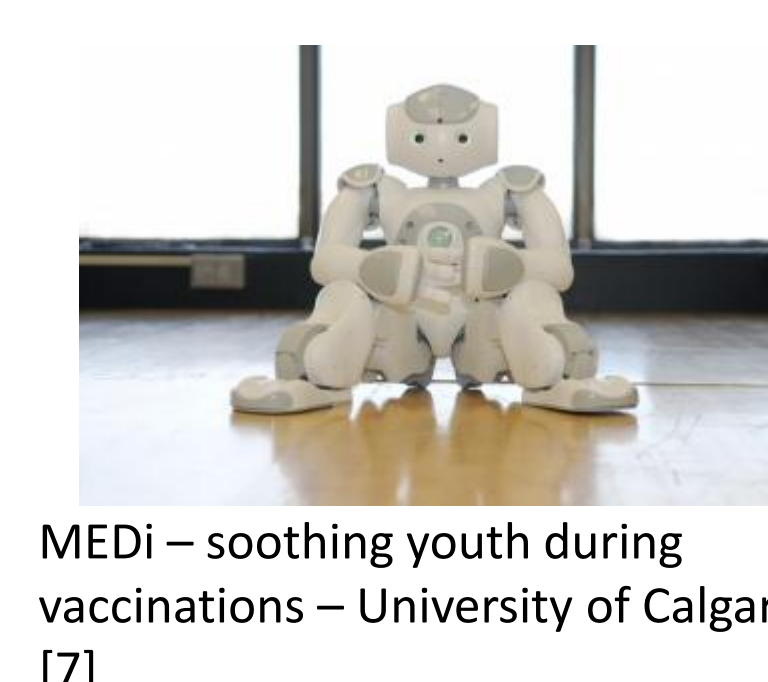
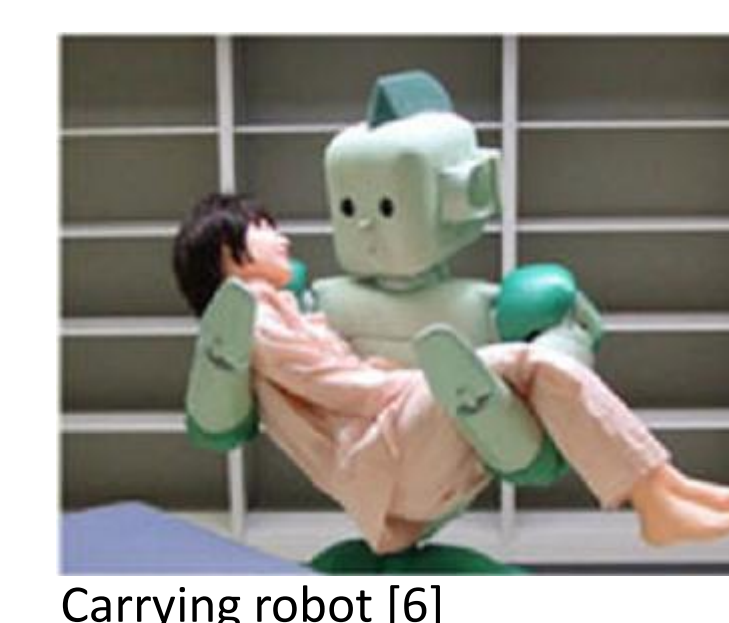
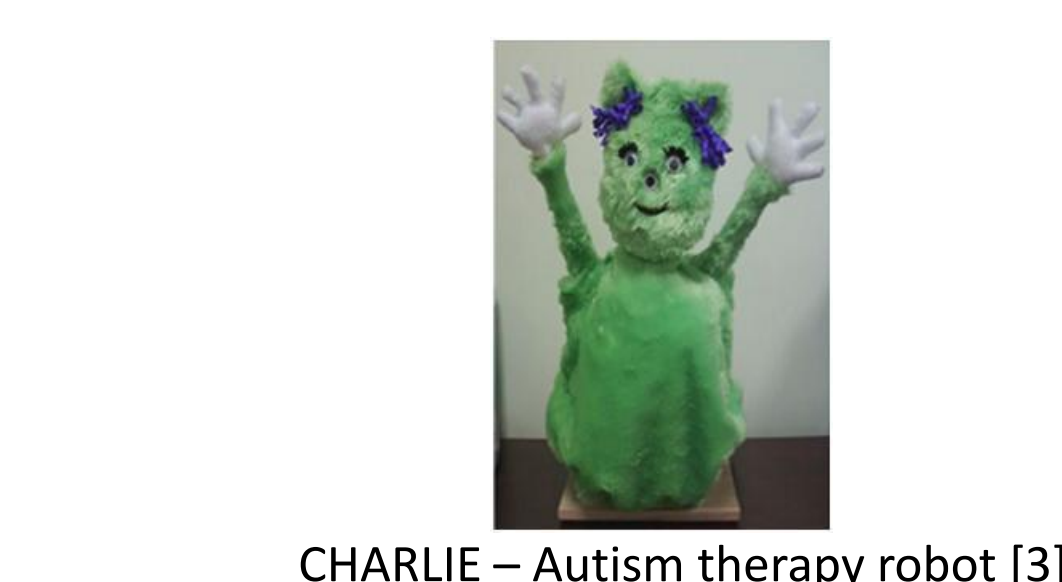
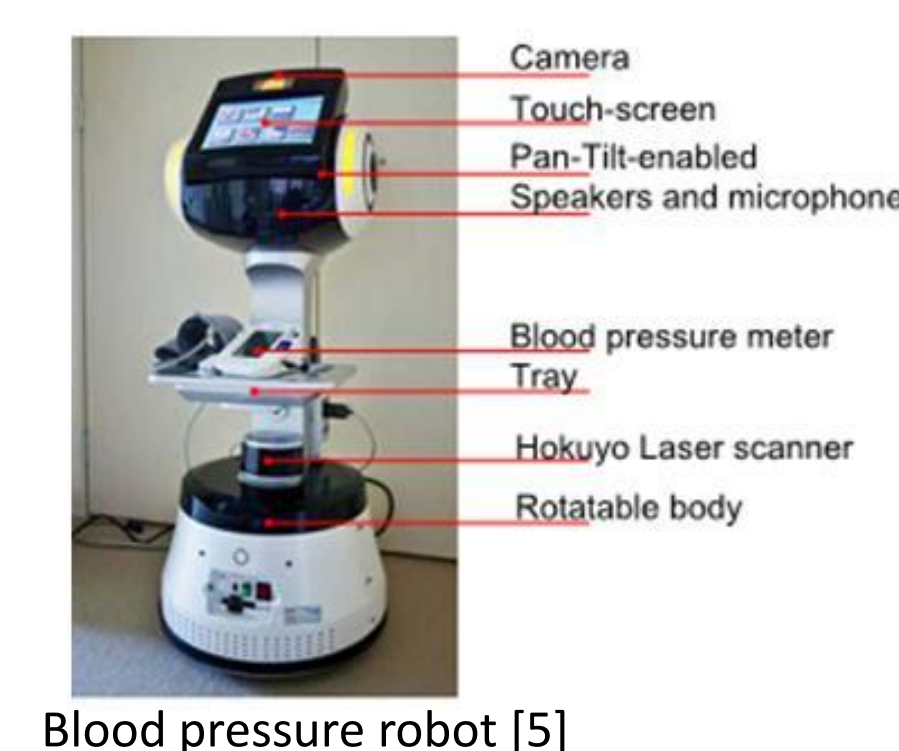
- Rehabilitation (e.g. post-stroke, motivation to do exercises) [2],
- Autism (e.g. teaching to recognize social cues, facial expressions, eye contact, etc) [3],
- Physical disabilities (e.g. movement, motivation) [4],
- Nurses, blood pressure [5], carrying [6]
- Bathing [6]
- Easing vaccinations for youth [7]

ELDERCARE ROBOTS

- Bathing, carrying, assisted walking [6]
- Companions [8]

Issues for social robotics

- Acceptance [5]
- Safety [9]
- Ethics – of using robots for patient care, for elderly care (ex. loneliness from less human contact because of robot companions) [1]
- Authenticity crisis for human relationships [10]
- Employment – robots taking over human jobs and threats to job security [11]



Gaps and Future Directions

- Some social robotics research is taking place in Canada: [6][7]
- Need qualitative data on the views of general public, healthcare professionals, policy makers and researchers – which social robotics applications would be acceptable, and why?
- Next step for this project:**
- Survey study underway, with Disability service workers in Saskatchewan.
- Which robots do they see as acceptable, and for which tasks?
- Plan to do a similar study with Calgary service organization, and with healthcare professionals, researchers and other healthcare stakeholders

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<http://medicine.ucalgary.ca/vaccine-research-Calgary>

Robotics Applications

Section Text.

- Medical perspective is dominant – focus on treatment, “fixing”
- Wellness angle is missing, as is ability-diverse angle (helping people to live as they are, rather than “fixing” them)
- Main disability of focus is autism, but others can benefit from robotics

Applications	Description	Potential Users/Venues	Example Robots
Elderly care robots	Bathing, carrying, assisted walking	Elderly, nurses, long-term care facilities	
Healthcare robots	Rehabilitation (e.g. post-stroke, motivation to do exercises), for autism (e.g. teaching to recognize social cues, facial expressions, eye contact, etc), for physical disabilities (e.g. movement, motivation), nurses, bathing	Therapists, in homes, hospitals, clinics	
Education robots	Arithmetic, reading, tutors, classroom companions	Schools, in homes	
Service robots	Cleaning, vacuuming, trash disposal	In homes, hospitals, offices, clinics, etc	
Companion robots	Conversation, emotional responses, sex, marriage partners	Elderly, general users	

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