Evaluation of Telecare Services

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The dominant evaluation approach

Randomized controlled trial

Why?

- Because it is thought as the most <u>legitimate</u> and <u>credible</u> evaluation technique.

- It is in agreement with medical tradition of evidence based medicine.

Telecare - a drug?

Telecare is seen as a _drug_ and is evaluated as a _drug_.

But:

- is telecare a drug?

- does it have an immediate effect on patients' health?

- can RCT shows effects on patients' quality of life and emotional condition?

- can telecare be prescribed in practice?

The second most popular evaluation approach

Economic analysis

- *cost and benefit analysis*
- *productivity*

Why?

- *Because telecare costs and its economic utility should be proven*

- *Funding bodies and administrators require it and understand it!*

Telecare - a managerial innovation?

Telecare is seen as an innovation that can:

1. reduce cost of healthcare delivery

2. raise physicians' productivity

3. increase patients' satisfaction

Limitations of economic analysis

- measure whatever is easiest

- ignore difficulty to measure variables
  - patients time and effort
  - value of information
  - intellectual work

- try to quantify variables that cannot be measured (etc. cost of human life)

- measure whatever gives the desired results

- ignore impact on social aspects, like doctors-patients relationship, on quality of life, on patients' psychology, etc...

Telecare - an information system embedded in a clinical context

"information systems are social systems whose behaviour is heavily influenced by the goals, values and beliefs of individuals and groups, as well as the performance of the technology."

(Angell and Smithson 1991)

components of an information system, and, therefore of a telecare service:

- technology
- people (patients, physicians, administrators)
- organisation (health care sector/clinic)

Let us abandon positivism!!!

RCTs and economic analysis draw on positivism (objectivism):

- origins in natural science

- uses traditional scientific method (formal propositions, quantifiable measures, hypothesis testing)

- attempts to generalize findings

- attempts to prove

Interpretivism

- there is NO objective, single reality

- the social "reality" is constructed by each person according to the meanings and beliefs they hold

- *research methods*: case study, ethnography etc

- *research techniques*:
  - observation of the different stakeholders groups,
  - unstructured and semi-structured interviews,
  - documentation review
  - researchers' interaction with the technology used

Interpretivism in evaluation

Evaluation aims:

- to understand
  - the context
  - the interaction of different groups of stakeholders with technology

- to learn

- not to prove

- not to judge

- not to generalize

Understanding evaluation

questions such as:

- what is the system under evaluation

- why carry out the evaluation

- when is the evaluation executed

- where is the evaluation to be performed

are subjective decisions that influence not only the way the evaluation is conducted but also the outcome of it

(Smithson and Tsiavos (2004))

Interpretivism in telecare evaluation

A new school of thought in telecare but not in information systems research

Current problem in literature:

- most of telecare researchers do not usually use any theoretical framework to guide their qualitative research and draw their conclusions

Therefore,

their research is seen as **not reliable**

Interpretivism in telecare evaluation

However, doing interpretive research requires adopting a theoretical model in order to:

- present which aspects the evaluator wishes to study.

- to structure the report of stakeholders' experiences

- to interpret them in a way that general patterns of interaction can be derived

Evaluation framework by Cornford(1994)

	System functions	Human perspectives	Organizational context
Structure	Technical detail	Changed work conditions and implied requirements	Sustainability, opportunity costs, management needs, skill requirements
Process	Information processing correct and valid	Human participation in tasks; social interaction	Altered delivery and practice
Outcome	Relevant, applicable, reliable	Quality of service and outcomes	Effect in the world

	System functions	Human perspectives			Organizational context
		Physicians	Patients	Administrators	
Structure	*what* are the real hardware and software **requirements;** does the full set of system components work together in a technical sense?	*what* are the changes to **working conditions** and practices, in terms of the physical, environment and skill requirements?	are patients required to **modify their behaviour** in any way?	is the system a reasonable, **cost-effective alternative** to existing tools or materials in use?	Could such technology be **sustained** and supported within the organizational context?
Process	*is* the method by which the system transforms its data, the **information processing,** correct and valid?	*how* was the user's **mode of operation** changed? Are these changes seen as desirable to the user as an individual, and in general to the user's organizational role?	*how* is the patient's **experience of health care** altered at the point of contact with the system?	*does* the system imply change in the health care delivery activities for which the administrator is responsible? Does it change the character of the **administrator's job**?	Could such a system function within the confines of **broader health policy**?
Outcome	*are* the **results** relevant, applicable and reliable? Does it meet the requirement specifications?	*was* the overall **effectiveness** of the clinician within the health care system enhanced?	*does* the use of the system result in changes in the quality of service and **better health** for the patient?	*does* the system **improve specific health provision** on a reasonable metric?	*could* such a system improve the **health status** and potential of the population it serves?

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System functions

- Structure
  - what are the real hardware and software requirements;
  - does the full set of system components work together in a technical sense?

- Process
  - is the method by which the system transforms its data, the information processing, correct and valid?

- Outcome
  - are the results relevant, applicable and reliable?
  - does it meet the requirement specifications?

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Human perspectives: physicians

- Structure
  - what are the changes to working conditions and practices, in terms of the physical, environment and skill requirements?

- Process
  - how was the user's mode of operation changed? Are these changes seen as desirable to the user as an individual, and in general to the user's organizational role?

- Outcome
  - was the overall effectiveness of the clinician within the health care system enhanced?

	System functions	Human perspectives			Organizational context
		Physicians	Patients	Administrators	
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Human perspectives: patients

- Structure
  - are patients required to modify their behaviour in any way?
- Process
  - how is the patient's experience of health care altered at the point of contact with the system?
- Outcome
  - does the use of the system result in changes in the quality of service and better health for the patient?

System functions	Human perspectives			Organizational context
	Physicians	Patients	Administrators	
Structure				
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Human perspectives: administrators

- Structure
  - is the system a reasonable, cost-effective alternative to existing tools or materials in use?
- Process
  - does the system imply change in the health care delivery activities for which the administrator is responsible?
  - Does it change the character of the administrator's job?
- Outcome
  - does the system improve specific health provision on a reasonable metric?

	System functions	Human perspectives			Organizational context
		Physicians	Patients	Administrators	
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Organizational context

- Structure
  - Could such technology be sustained and supported within the organizational context?

- Process
  - Could such a system function within the confines of broader health policy?

- Outcome
  - could such a system improve the health status and potential of the population it serves?

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