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Web 2.0 valorization toolkits to increase the Uptake and Impact of eHealth

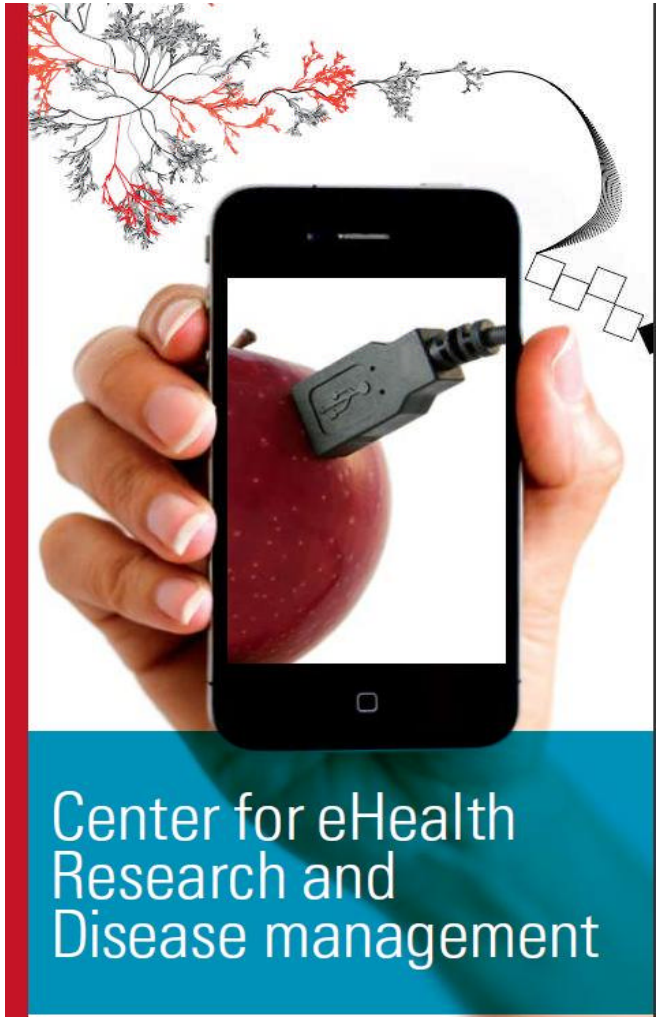
Center eHealth Research & Disease management

IARIA Fellows

IARIA
www.iaria.org

The Fourth International Conference on eHealth, Telemedicine, and Social Medicine
eTELEMED 2012
January 30 - February 4, 2012 - Valencia, Spain
http://www.iaria.org/conferences2012/eTELEMED12.html

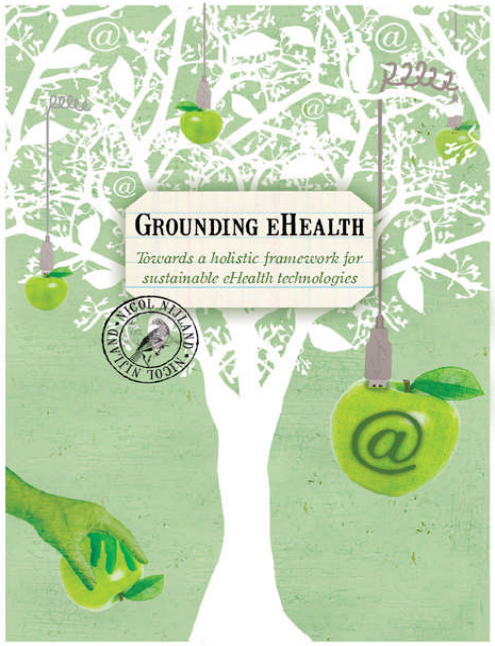
Center for eHealth Research & Disease Management



- to intensify cooperation with international research centres and healthcare institutes
- to advice about (re)designing and implementing technology in healthcare
- to contribute to the solution of global health problems, like ageing and chronic care, via a multidisciplinary approach (*social sciences & engineering)*

http://ehealthresearchcenter.org

eHealth, problems with uptake & impact



eHealth is not sexy

bum's rush projects

funding without vision

no business models

lack of trust, skills HCWs

few competent evaluations

Panel Objectives

- Is a WIKI an appropriate instrument to share knowledge about how to develop High Quality Tech with a Human Touch
- (if so: what are the requirements)

Who are the panelists?

Sinclair Wynchank (Medical Research Council, SA)

Åsa Smedberg (Stockholm University , Sweden)

Kathryn Bowles (University of Pennsylvania, USA)

Who are the panelists?

Nicol Nijland (University of Twente / Medicinfo, NL)

Maarten van Limburg (University of Twente, NL)

Hans Ossebaard (RIVM, NL)

Lex van Velsen (University of Twente / RIVM, NL)

Our Heroes

Topics panel discussion

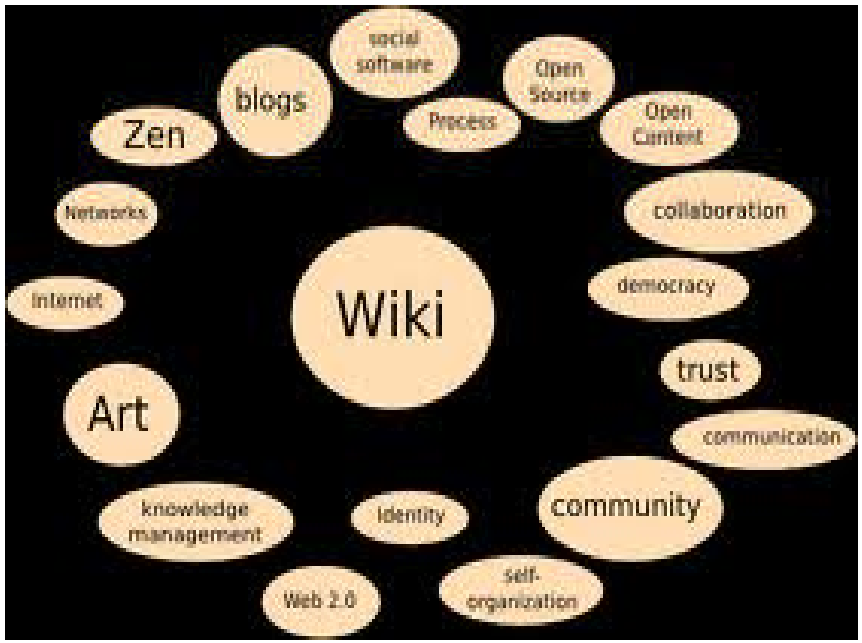
- Why a virtual knowledge network?
- What is the added value?
- What's its fundament and how does it work?
- What are the opportunities for practices?
- What are the bumps for maintenance?
- Future plans

What is a wiki?

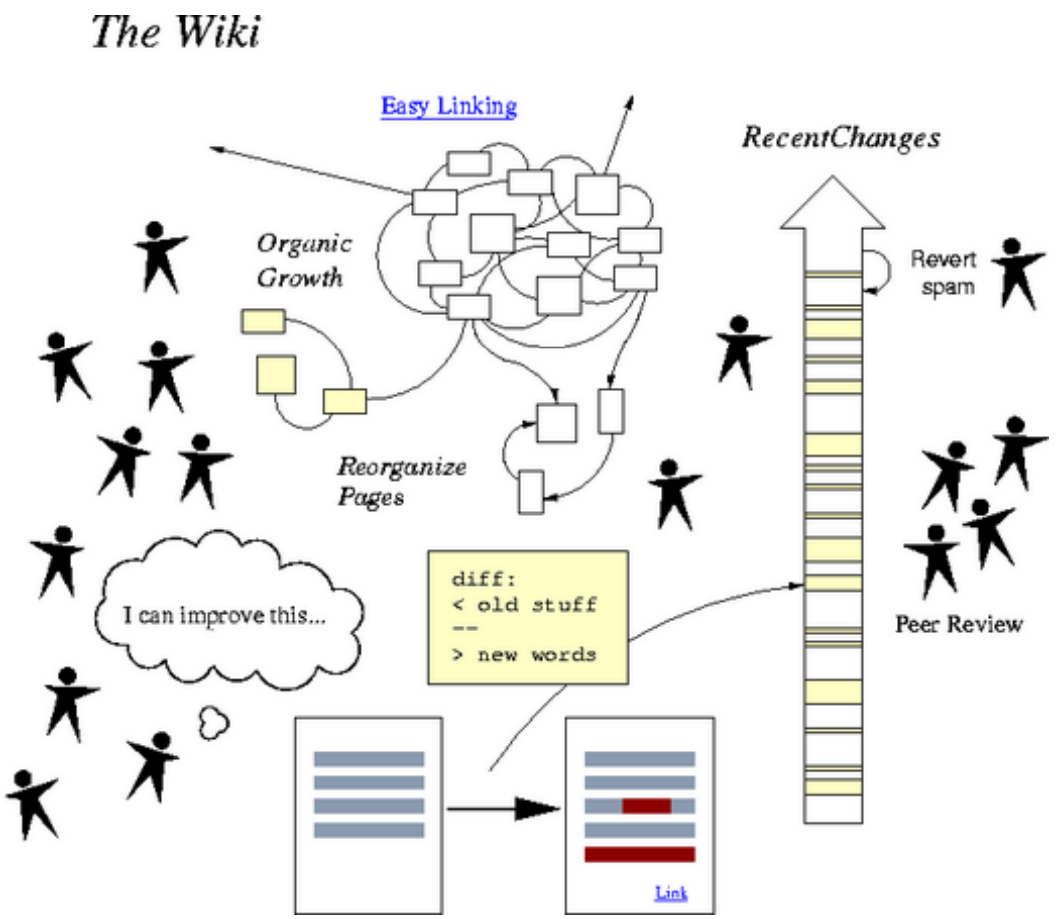
A wiki is a website that usually has the following two properties:

- Anybody can edit the pages of the wiki, and anybody can undo these edits
- It is easy to write new pages for the wiki, because it doesn't use HTML

Connotations



How does it work?



source: oddmuse.org/

Why a wiki in eHealth

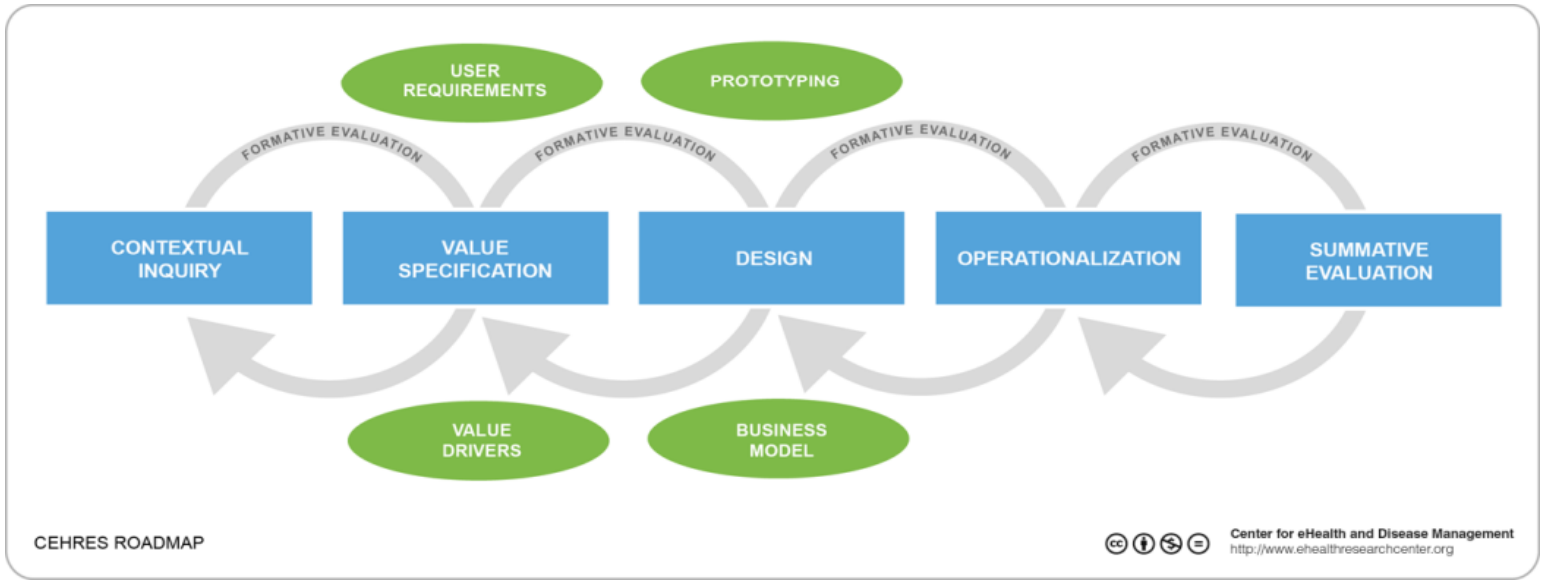
to increase adherence and adoption of eH interventions

- Simple
- Groupware
- Document management
- Knowledge management

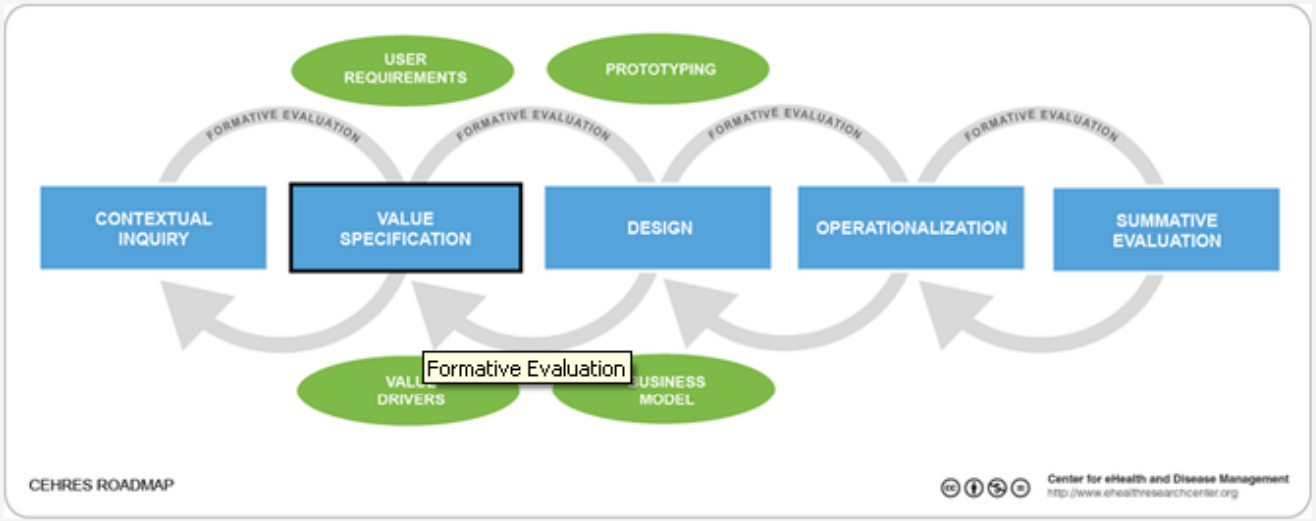
Original Paper

A holistic framework to improve the uptake and impact of eHealth technologies

Julia EWC van Gemert-Pijnen[1], PhD; Nicol Nijland[1], PhD; Maarten AH Van Limburg[1], MSc; Hans C Ossebaard[2], MSc; Saskia M Kelders[1], MSc; Gunther Eysenbach[3], MD, MPH; Erwin R Seydel[1], PhD



VALUE SPECIFICATION



PURPOSE AND MEANING

The value specification process elaborates on the outcomes of the contextual inquiry. It is aimed at exploring what healthcare improvements are foreseen and what the possibilities or expected limitations are to realize the values. In this process the key stakeholders determine first their values (economical, social, and behavioral) and then rank them based on their importance for solving the identified problem(s). After specifying and ranking the stakeholders' values, the eHealth goals can be formulated. The next step is to define the requirements to realize the values.

CHECKLIST

Research questions:

A. What improvements in the quality of care are desired by the stakeholders?

Examples eHealthwiki Uptake & Impact

WIKI: HOW TO INCREASE THE IMPACT OF HEALTH TECHNOLOGIES

JOURNAL OF MEDICAL INTERNET RESEARCH van Limburg et al

Original Paper

Why Business Modelling is crucial in the development of eHealth technologies

Maarten van Limburg[1], MSc BEng; Julia EWC van Gemert-Pijnen[1], PhD; Nicol Nijland[1], PhD; Hans C Ossebaard[2], MA; Ron MG Hendrix[1], MD, PhD; Erwin R Seydel[1], PhD

Implementation NOT ex-post

- Wiki contains instuments for value cocreation
- Develop not only a technology, also multidisciplinary instruments for the infrastructure around the technology to improve the uptake

Critical decision system

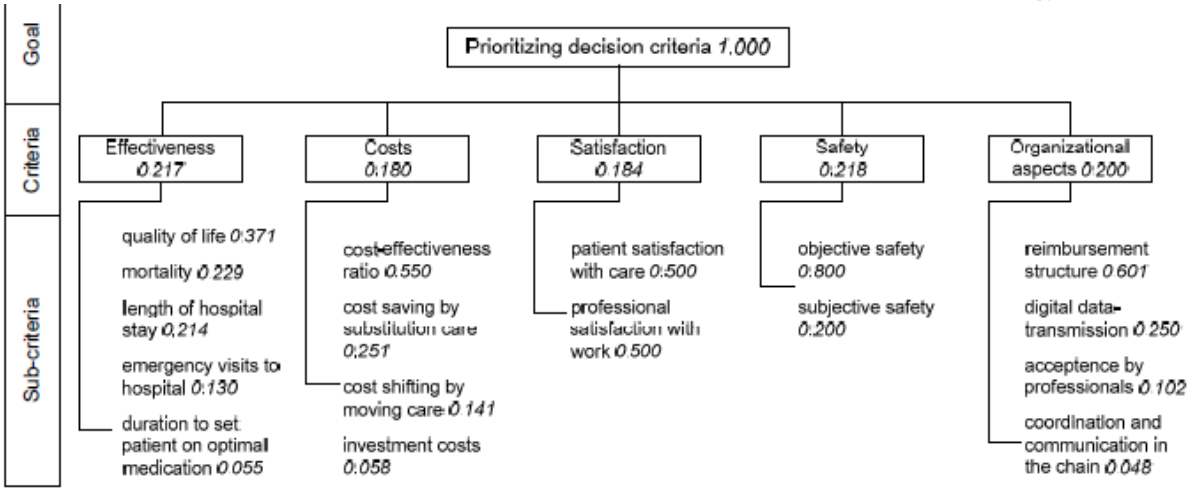


Figure 2: Director R&D

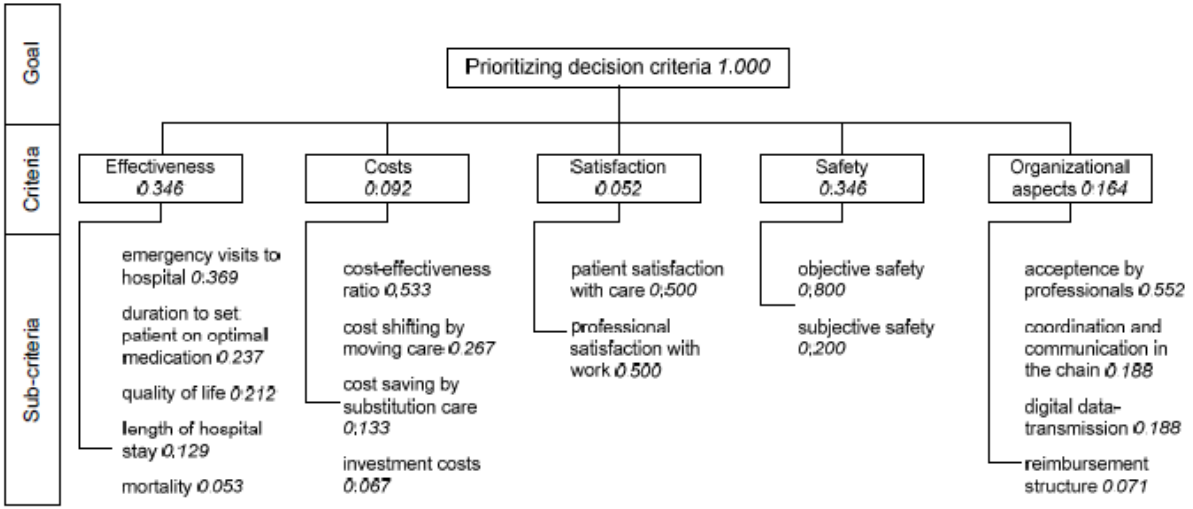


Figure 3: Health insurer

What business model drives eHealth technology?

Editorials and Commentary

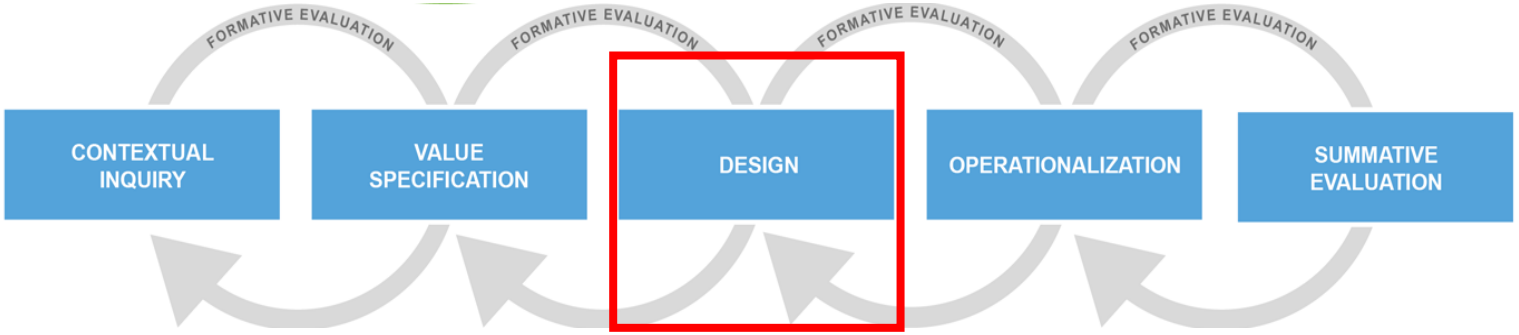
Answering the "What Works?" Question in Health Behavior Change

Gregory J. Norman, PhD

WIKI: TOOLS TO INCREASE UPTAKE & ADHERENCE

HOW TO CREATE PERSUASIVE DESIGNS?

Persuasive designs: Social media



Information at the right moment ,

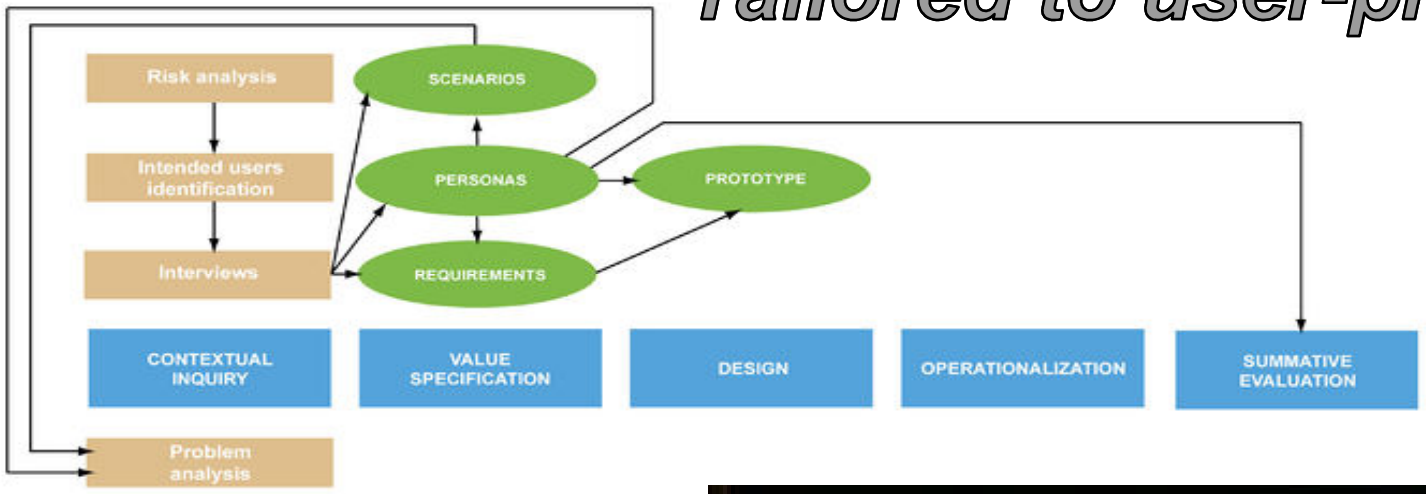
easy to get, easy to use, easy to modify , but PERSUASIVE?

- YouTube
- Twitter
- Facebook
- Mobile apps

rivm
National Institute for Public Health and the Environment

In the picture below, you can see how personas can be used in a holistic design process for eHealth[3]. The development of the personas in this approach (as explained in the example Persona for a 'mobile tick app') is based upon a risk analysis to determine the most important user groups for the new eHealth technology, and interviews with members from these user groups. These personas, combined with scenarios, will then be used as input during a stakeholder session, like a focus group, that has the goal to reflect on the existing care delivery process and to eventually alter this practice. They also serve as input for the actual design of the new eHealth technology and both formative evaluation and summative evaluation.

Tailored to user-profile



Personas, and especially their disposition towards
weight) can be used as a basis for Persuasive Sy
persuasive strategies need to be geared [5].

Example

- Persona for a 'mobile tick app'

References

Persona “Tick bite”

Mark is 54 years old and planning engineer for a construction company. He lives together with his wife. Together, they have two children (21 and 19 years old) that live on their own by now. They don’t live completely alone though, together they take care for their dog: Tommy

Fortunately, Mark has never been bitten by tick. But he does know some things about the bug. He knows that it’s an insect that bites and sucks your blood. He also knows it can give you Lyme disease. Finally, he thinks that ticks fall down on you from trees, and that if you’re bitten you should visit your GP to get the tick removed. Mark has seen ticks before, Tommy takes them home now and again. Then, Mark or his wife remove them with tick pliers.

Mark does not visit nature very often. In the summer he likes to sit in his backyard, and when they go on vacation he and his wife like to make long walks through the forests or the mountains. He does not take preventive measures to prevent a tick bite then. He also doesn’t check for tick bites afterwards. It simply does not cross his mind.

His digital skills are perfectly fine, Mark thinks. After all, he thinks it’s fun to try out new technology and he has numerous apps on his iPhone 4g. He takes his phone everywhere and never turns it off. Mark will only start to search for information about ticks on the Internet or on his iPhone when he notices he’s been bitten by a tick. In that case, he will Google first, but will also check out the website of his Local Health Authority.

Photo: ChrisGoldNY, used under creative commons license

HOW TO EVALUATE DYNAMIC WEBBASED INTERVENTIONS?

Empowerment

Self-help

Health Promotion

The process of enabling people to increase control over their health and its determinants, and thereby improve their health

Learning

Coping

Communication

Social mobilisation

Community

Lifestyles

Dynamic webbased interventions

- Customized interventions
- Dynamic interventions as opposed to predefined, well structured, intervention programs…
- Flexible and dynamic webbased systems for different actors, both patients/citizens and health professionals
- Towards integrating different actors, knowledge, conversations and support

The contents of this type of interventions are dynamic…evaluating them demands for a new way of thinking…

How to evaluate dynamic webbased interventions?

- To understand how the intervention targets the participants
  - Questionnaires and interviews
  - “before and after””
  - health outcomes
- To understand and evaluate the intervention system, the ”black box”
  - The system usage – logs of user activities
  - Patterns of activities, usage of functions, engagement in conversations, sharing, etc.
- Personal experiences of the system
  - Online social support in the community, practical implications, etc.

…

eHealthWikis and Communities of practice

- Sharing knowledge and understanding in a community of people who are interested in webbased interventions
- To define competent behavior and methods; how to navigate in the field
- To solve upcoming problems and reflect together
- And to challenge each other's understanding

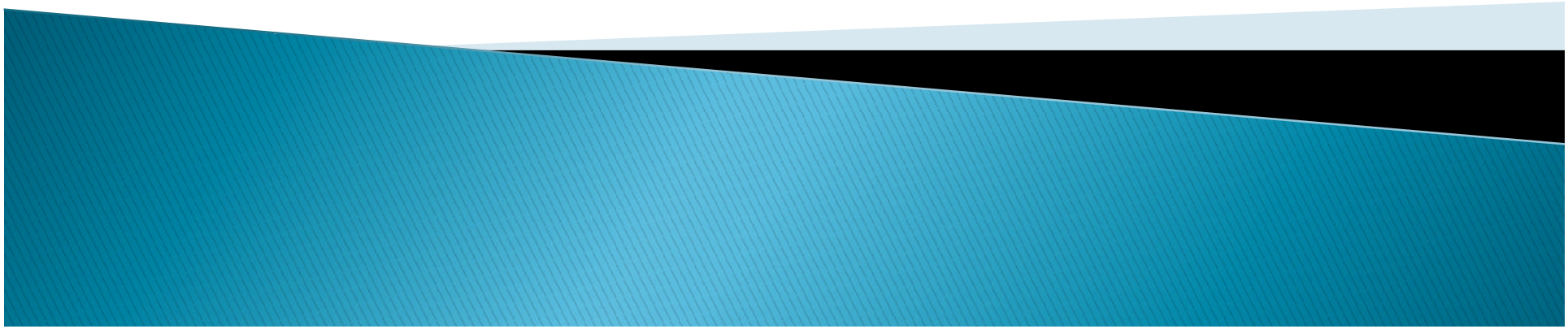
Things to consider:

- The development of deep expertise Vs. innovation (expanding the domain/the community)

- Learning takes place through the tension between competence of the community and our experiences

Barriers to Uptake of Telehomecare and Strategies for Improvement

Kathryn H. Bowles PhD, RN, FAAN
Professor of Nursing
University of Pennsylvania



Barriers to uptake: patients

- Requires connection to their phone lines
- Many have no landlines
- Multiple family members use the equipment
- Reminds them of illness-motivation to use
- Ease of use

Strategies for patient uptake

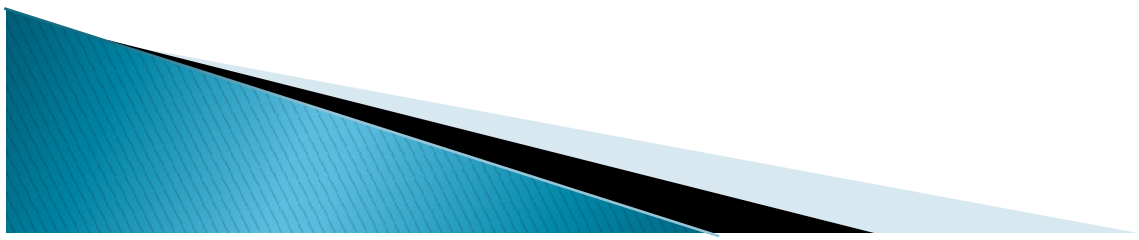
- Simple, affordable equipment
- Integrated into daily routine
- Does not interfere with personal items-phone
- Non-intrusive contact
- Prompt action
- Shared results
- Promoted by physician
- Visual displays of data for teaching

Barriers to uptake-nurses

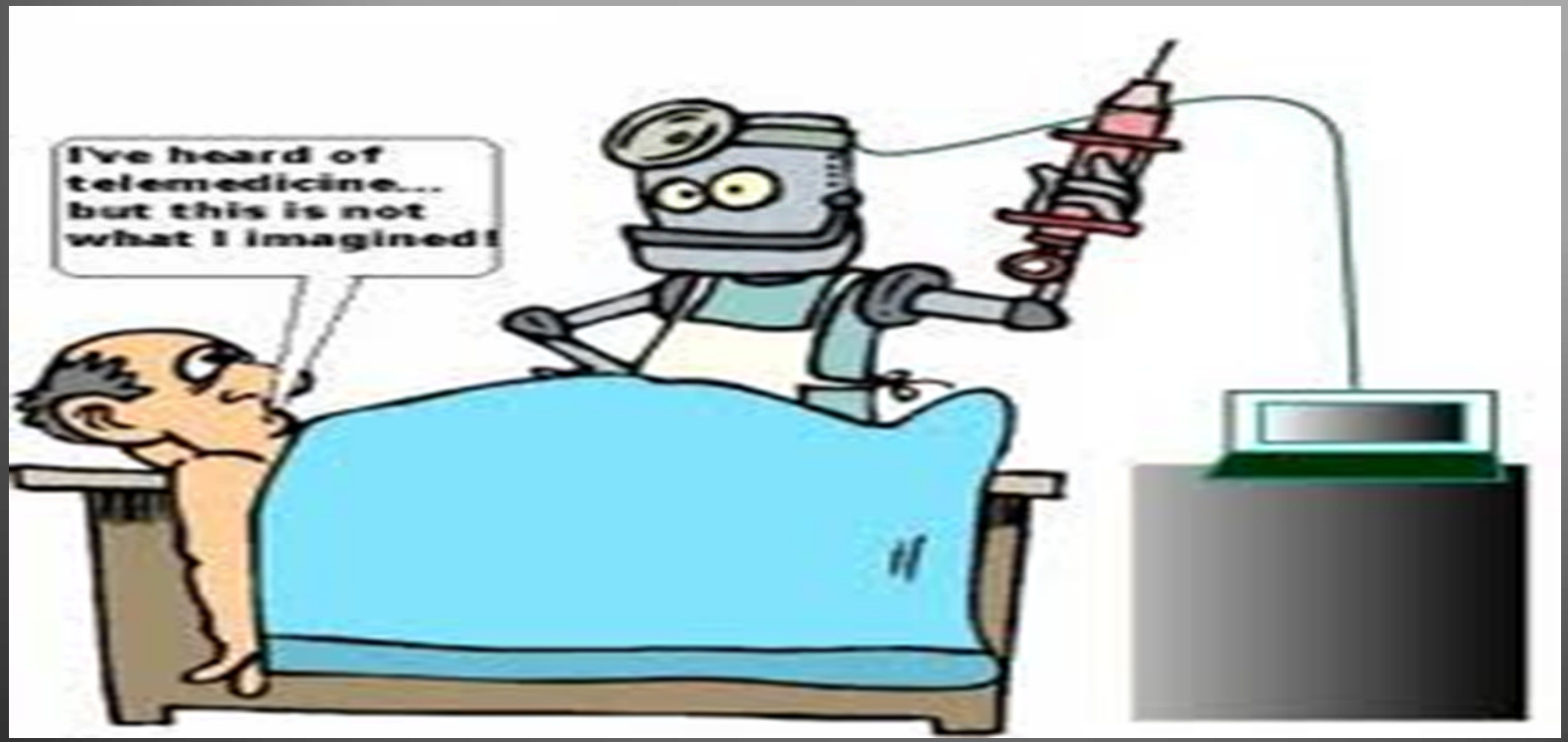
- Delivery of equipment to the home
- Set-up of equipment, finding the outlet
- Time it takes to teach patients
- Coordination of care with others
  - Telehealth nurse
  - Physicians
- Lack of access to the data
- False alarms
- Lack of decision support

Strategies for nurse uptake

- Easy to install and teach
- Count in their productivity
- Adequate training and technical support
- Access to data from the field
- Decreased false alarms
- Decision support
- Automated patient contact
- Improved communication with physicians
- Receive feedback on program effectiveness



Thank you



Discussion topics

- What might be the added value of an eHealthwiki?
  - *In view of different stakeholders*
- How to manage an eHealthwiki tool?
- How to deal with credibility?

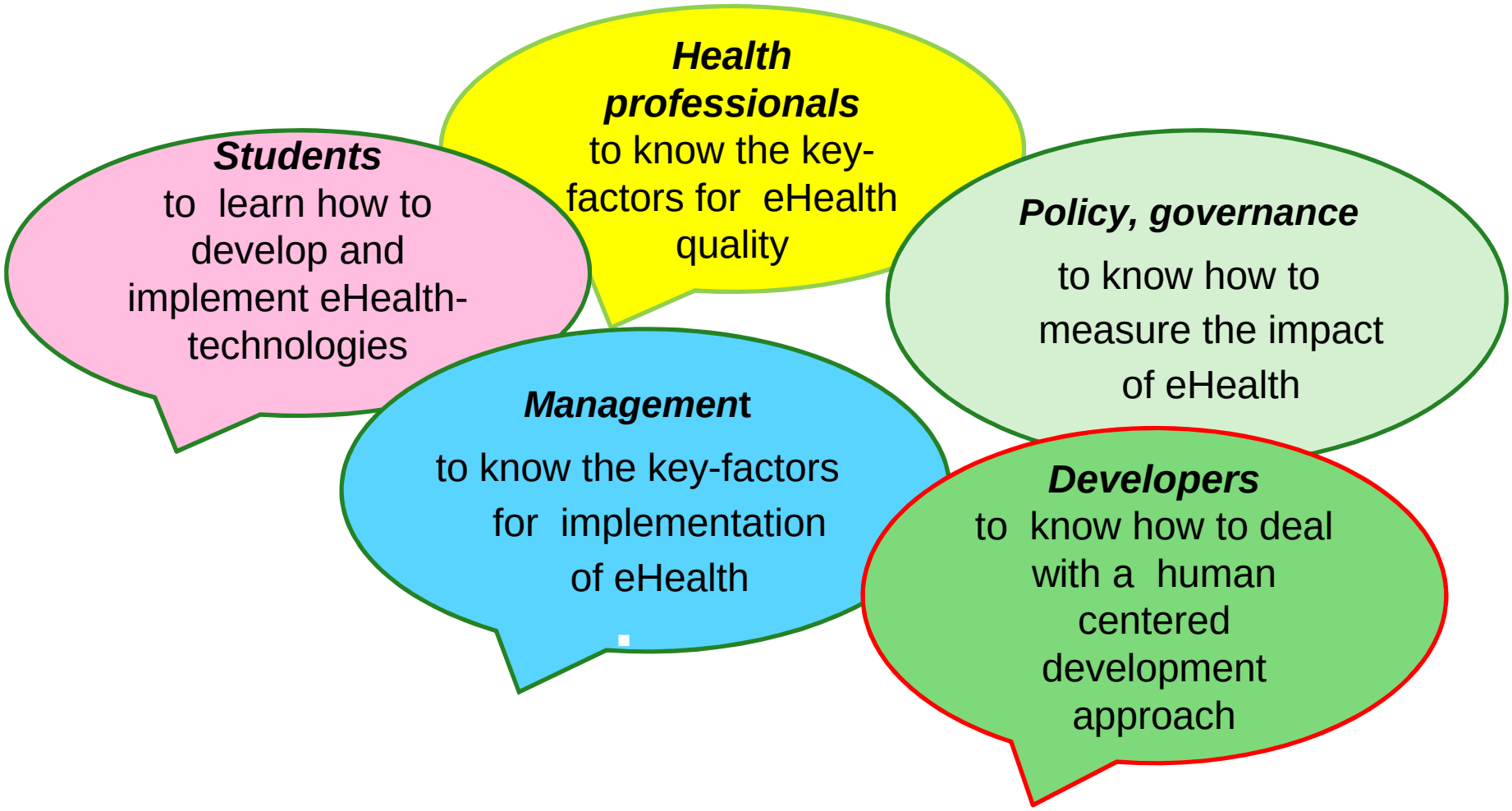
Stakeholder analysis

Which stakeholders are involved in this session?

- Health care professionals?
- Researchers?
- Developers?
- Decision-makers?
- Patients?
- Consultants?
- Engineering?
- Payers? (healthcare insurers)

……..?

Who are the Stakeholders eHealth wiki….



Discussion topics……. #1

- **What might be the added value of an eHealthwiki?**
  - *What's in for you?*
  - *In what way could it be meaningful (practice, education, policy; innovation)?*
  - *What's in for the "designers?*
  - *Who owns / is allowed to alter information on the ehealthwiki?*
  - *How to use a wiki as a one stop shopping model, academia, industrial companies?*

Discussion topics……. #2

- **How to manage an eHealthwiki tool?**
  - *How to guarantee quality?*
  - *How to avoid vandalism?*
  - *Lack of time and resources ?*
  - *How to deal with leeches? (no contribution)*

Discussion topics……. #3

- **How to deal with credibility?**
  - *lack of meta-information; unclear ownership, no editing information*
  - *How to deal with trust?*
  - Open (like wikipedia) or moderated/trusted authors?

Why contribute? Some thoughts…

- Found to be of significance and accepted
- Love of information, desire to share it
- High social impact
- Intellectual challenge to translate complex ideas into a wiki-language
- Participate in a Web-based international community
- eHealth education programs supported via wiki
- To improve evidence via knowledge network

What next?

- More stakeholders meetings
  - Conferences
  - Knowledge partners
  - Healthcare workers
- Upgrading wiki (design)
- Dissemination via web 2.0 communities
- Business model eHealthwiki platform

eHealth Contact

Supporting Health by Technology IV
Evidence for implementation eHealth
22 May, The Netherlands

Contact:

dr. J (Lisette) van Gemert-Pijnen

J.vanGemert-Pijnen@utwente.nl

http://ehealthresearchcenter.org

Requirements engineering

“all the activities devoted to

the identification of user requirements,

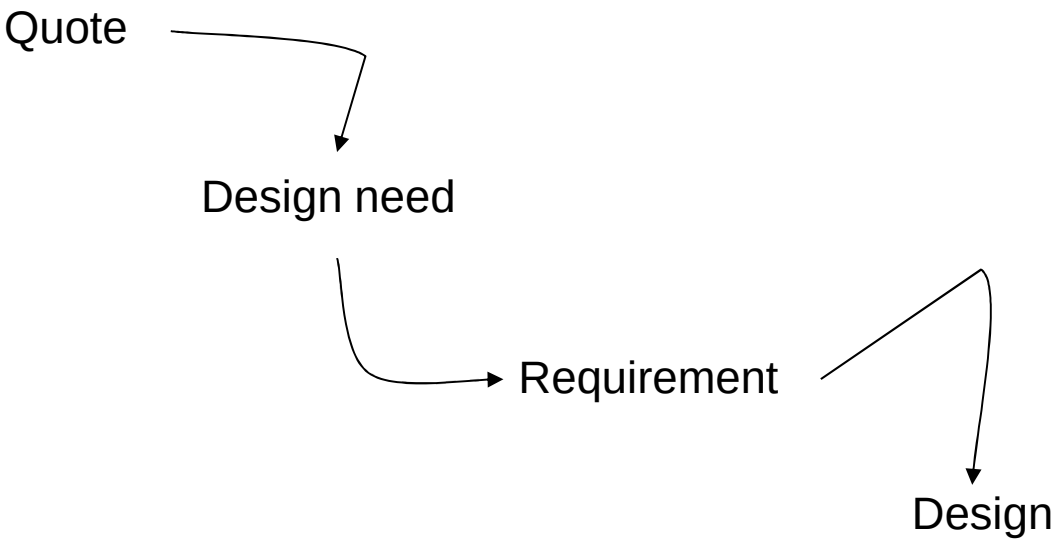
analysis of the requirements to drive additional requirements,

documentation of the requirements as a specification,

and validation of the documented requirements against the actual user needs”

(Saiedian & Dale, 2000, p. 420).

Requirements engineering



Requirements engineering

Table 3. Clarification of the Translation Process from General Needs to Requirements.

User Expression	General User Need/Motivator	Design-oriented needs	System Requirement
"You need to feel that you are *involved* and have the *power* of your own life. That is important."	Independence	Create a feeling of freedom when using the system	Support mobile solutions Handle data from multiple communication channels Visualize the importance of the users' input
	Status	Make people visible to the community	Display contributors name Visualize the importance of the users' input
	Idealism	Provide information regarding the suggestion	Indicate and display the process for the suggestion

Bergvall-Kareborn & Stahlbrost, 2010

Volere template

Requirement #: 28 Requirement Type: Functional

Description: The system must provide the clients with the option of collecting data from another organization involved in the service supply chain, where the data is already known.

Rationale: Having to provide the same data more than once to a government agency involved in the service chain should be avoided.

Source: Client interview 1, 2, 3 and 5; Employee interview 1 and 3

Fit Criterion: Not applicable

Customer Satisfaction: 4 Customer Dissatisfaction: 4

Priority: High Conflicts: none

History: Created May 1, 2007

Van Velsen et al., 2009

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PANEL

Web 2.0 Valorization Toolkits to Increase the Uptake of eHealth Technologies

eTelemed 2012, Valencia (Es)

H.C. Ossebaard

Issues

- WHAT SHOULD BE THE FOUR ESSENTIAL PERSUASIVE PRINCIPLES in A WIKI FOR 2.0 COLLABORATION? THAT IS: WHAT CANNOT BE MISSED OUT IF this tool IS TO SUCCEED IN THE SHORT-TERM.

- IN WHAT TERMS SHOULD THE SUCCESS OF A WIKI BE DESCRIBED OR MEASURED? (EXAMPLES)

- WHAT CAN BE DONE TO PROMOTE PARTICIPATION OF STAKEHOLDFERS (DEVELOPERS, SCIENTISTS, PATIENTS, HEALTH CARE PROFESSIONALS ETC.)

- CAN WE ENGAGE YOU AND PRESENT THE RESULTS OF OUR COLLBORATION IN NEXT YEAR'S eTELEMED?

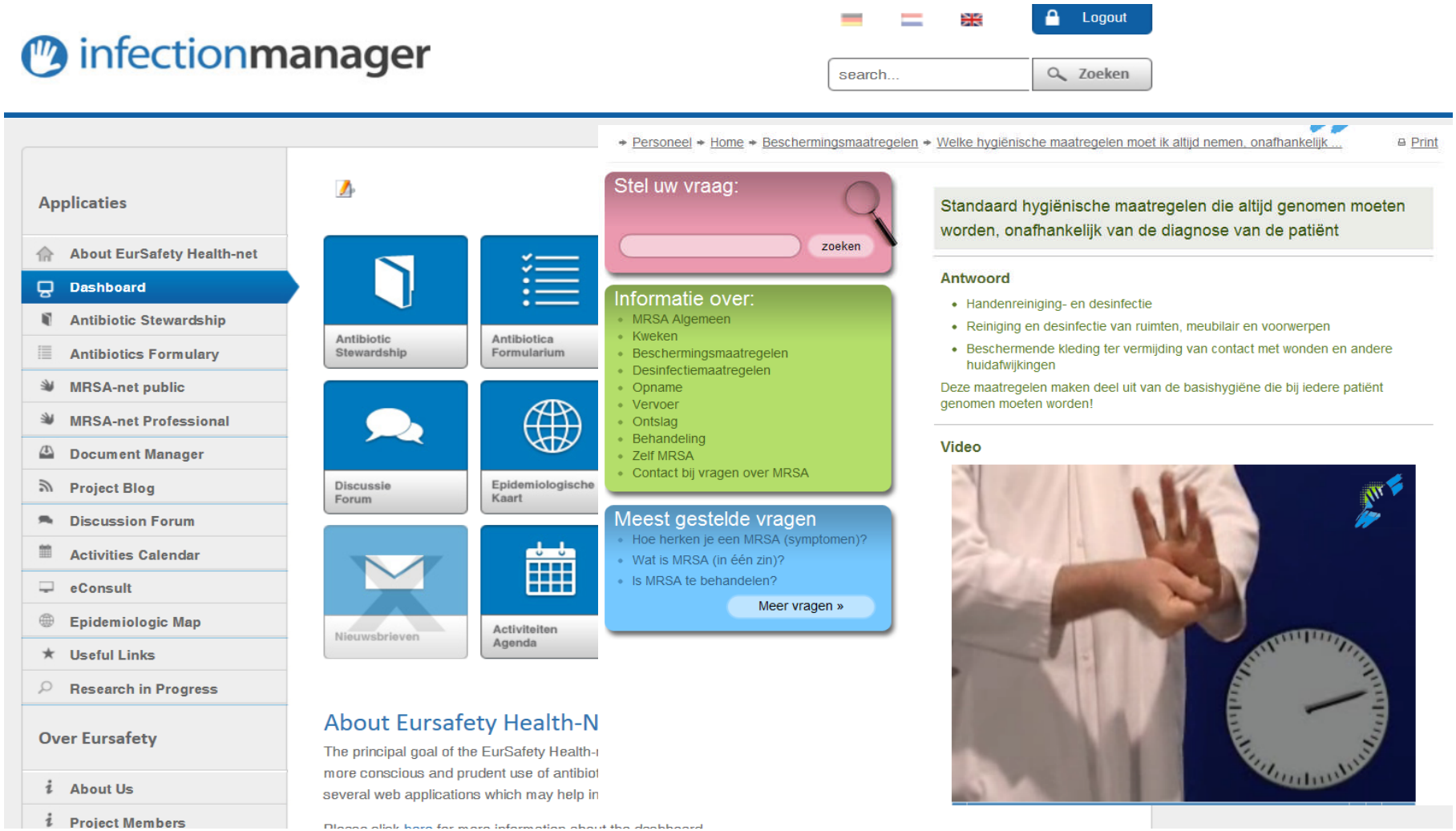
Why an eHealthwiki?

The Impact of eHealth on the Quality and Safety of Health Care: A Systematic Overview

Ashly D. Black[1], Josip Car[1], Claudia Pagliari[2], Chantelle Anandan[2], Kathrin Cresswell[2], Tomislav Bokun[1], Brian McKinstry[2], Rob Procter[3], Azeem Majeed[4], Aziz Sheikh[2]*

Willkommen bei – Welkom op
EURSAFETY HEALTH-NET
Euregionaal Netwerk voor Patiëntveiligheid en Bescherming tegen infecties

Participatory designs, *medical protocols tailored* to support decision-making (tailored information)



Decision support via mobile devices (hub for instruction)

Ceiling-mounted 'emitters' provide information, such as location and a patient's contagion level, to a portable electronic device.
Persuasive or coercive
This electronic device vibrates or beeps if the user forgets to wash his or her hands.
Dr. Veronique Boscart
Toronto Rehab's electronic hand hygiene monitoring system
A wearable alcohol gel dispenser. When gel is used, a signal goes to the electronic device, indicating that hand washing has occurred.

Persuasive Designs, *Different triggers, what matters?*

Feedback by person
Feedback automated

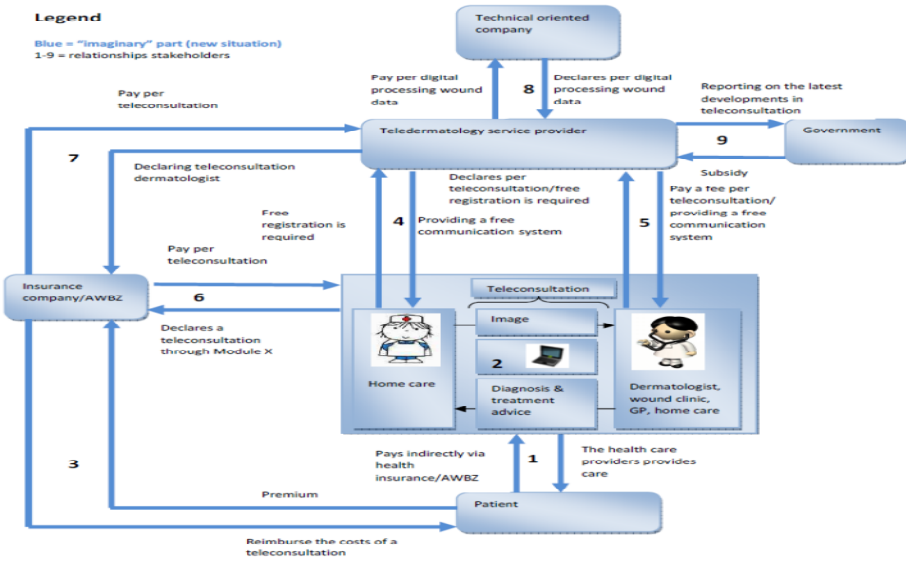
Reminders

Multimedia

Visualization of data

Principles holistic framework

1. Participatory development
2. Continuous evaluation cycles
3. Implementation is intertwined
4. Infrastructure-driven
5. Persuasive te
6. Advanced me



TeleHealth & Communicable Disease Surveillance in Developing Countries

Sinclair Wynchank

Medical Research Council, Cape Town, South Africa

Contents

- **Confession** -This case study/presentation is based on a **prog underway** (***so rather than informing you today, you are being used as cheap labour to provide ideas***)
- Project is financed by African Development Bank - **$US 4M**
- It's for **all 14 SADC** (Southern African Development Community) countries

[Angola, Botswana, DRC, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe - These are **very varied** nations]

(Note a later **WHO Declaration - Social Determinants of Health**, Rio de Janeiro, Oct'11 "We pledge to**: Establish, strengthen** and **maintain monitoring systems** that provide disaggregated data to assess inequities in health outcomes as well as in allocations and use of resources."**)**

Purpose of Project

- Project is intended to monitor **HIV/AIDS, TB & Malaria** (also other functions) in SADC nations

- Main Aspects:
  (1) Disease **Surveillance** (with central reporting),
  (2) **Reference Laboratory** participation,
  (3) **Referral Hospitals**, mainly 3^0 facilities

-Is it feasible?

- How to go about **establishing feasibility?**

(Suggestions/interruptions very welcome from audience)

13 obvious considerations:

- **ICT** - crucial for any TeleHealth (& other technologies, eg remote sensing – rainfall & Malaria)
- Detailed **interviews** in all 14 SADC nations
- Survey **existing facilities** & current plans for changes to them (including present referral patterns for patients & specimens – mostly to SA)
- Plan for **Quantitative outcomes**: Epidemiological trends, patterns of spread, relevant parameters (incidence, prevalence, morbidity, co-infections, drug resistance, patterns, mortality)
- Consider **mHealth** – 620M cell phones in Africa in 2011
- Plan the **required network,** etc (ICT, equipment, connectivity, finances, personnel, training, etc)

- **Policies & strategies**
  - **Regulatory** & other **legal** aspects (cross-border activity)
  - There is an existing **SADC Protocol on Health** & all 14 members have signed its articles, ensuring cooperation
    - Article 3 re disease eradication
    - Article 6 to share information, cooperation & mutual aid
    - Article 7 the need for Telehealth
    - Also 8 other Articles directly relevant
- **Literature Review** – some papers about disease surveillance
- **Partners** (some SADC members already in partnerships with Developed Countries relevant to part of Proposed Network). So more partners? Coordinate efforts.
- Determine **needs (w.r.t. readiness)** (HR, ICT & financial**)**
- **Evaluation**
- **Tele-education** (very important)
- **Extensions** of project (where, when?)

- **What else?** Comments please?

Conclusion Feasible & Cost effective (agreed?)

Thank you very much