

Conclusion: The program should lead to the development of new standards (for ICT and logistics) and to a new, healthy financing model for health care chains using ICT. The ultimate goal of Madonna is to optimize patient logistics and knowledge management, with the aim of achieving affordable, but high quality patient care, education, training and research.

Self-management of self-limiting diseases via a web-based communication system for digital triage in Primary Care

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Background: Previous studies demonstrated that health care consumers favor web-based communication systems to control their own care [1]. For these self-management services to succeed, web-based communication systems have to be tailored to the diversity of health consumers' needs. The web-based communication system used encrypted software for secure exchange of information. Users had to log on with a user-ID password. The system required a pre-existing relationship between care consumers and caregivers, and was therefore a system with type B interactions (Bona fide relationship [2]). The system offered the following types of facilities to care consumers: a) general health information via online brochures, b) a symptom driven digital triage system for self-care, that consisted of a dynamic questioning-and answering system. The digital triage system provided a self-care advice; it can be seen as a "computer consult", c) a digital triage system combined with free-text (e-mail) to communicate with a GP (e-mail consult). In this paper we evaluated the digital triage system, or "computer consult" (b).

The symptom driven triage system (ISO 9000:2000 standards; certified TNO-QMIC) was developed with 25 'entry' complaints based on the criteria: high frequency, no physical contact required to assess medical situation, and the possibility to rule out emergencies. Each complaint leads to a specific triage module. Information required to assess the specific health situation was gathered through a dynamic questionnaire, varying on gender, age, and answers on previous questions. Upon completion, the expert system assesses the urgency of the current health situation and provides an advice.

The consumers received an online form (computer generated) with a diagnose and an advice, based on the information gathered through the health compliant related questions-and-answers, and varying from "contact a doctor immediately" to a tailored self-care advice. We examined the compliance with care advices provided via the expert system, e.g., the digital triage part of the system.

Objective: To empower health consumers to control their health behavior and to facilitate primary care practice.

Methods: The frequencies of various complaints and the types of advice provided by the system were examined (during 15 months, 2005) via retrospective analysis of complaints entered by 6,540 consumers. To determine factors influencing compliance with self-care advice a theory-based online survey ($n = 192$) was carried out presented at the website. A follow-up questionnaire ($n = 35$) was used for assessing the actual compliance with the advice (3 months period, 2006).

Results: Of the 6,540 consumers who started a digital consult, 59% ($n = 3785$) completed it and received a care advice. The frequency of the clinical problems presented most was: cough (22.4%, $n =$

848), dermatitis (13.9%, $n = 526$), urinary complaints (11.6%, $n = 439$), diarrhea (9.8%, $n = 371$) and headache (8%, $n = 303$). In 14% ($n = 543$) of cases, a fully automated problem tailored self-care advice was provided. The vast majority (86%) received an advice to contact a doctor; within 24 hours (51%), 17% within 4 hours, and 14% within 1 hour. The attitude ($p < 0.001$) towards the provided advice, the experienced confidence in the advice ($p < 0.001$), and the judgment about the effectiveness of the provided advice ($p < 0.001$) appeared to be significant predictors (predictive power 55%) of the intention to follow-up the advice. It appeared from the follow-up questionnaire that 57% of the 35 respondents actually complied with the given advice. Education ($p < 0.01$), medication use ($p < 0.05$), pre-existing plans to act on the advice ($p < 0.001$), correspondence between expected and received advice ($p < 0.001$) significantly influenced compliance.

Conclusion: Digital triage promotes self-management of self-limiting diseases especially for chronic care patients, and consumers who have confidence in computer-generated advice and who planned to act on the advice. Therefore, web-based consultation can contribute to a more efficient primary care system, it facilitates the gatekeepers' function. To promote web-based communication, further research is needed about factors that influence the efficiency and effectiveness of digital triage related to (non)compliance.

References

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The reach and use of an online healthy lifestyle program for pregnant women

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Background: Lifestyle counselling in an early stage of life may prevent many health related problems later. Therefore the Dutch Ministry of Health initiated an internet-based healthy lifestyle program that is offered to all pregnant women.

Objective: The aim of this pilot study was to assess the reach and use of an online healthy lifestyle program for pregnant women.

Methods: During March to August 2006, 1382 pregnant women visiting 25 midwifery practices in Amsterdam were invited to enroll in the program through registration on the program website. Pregnant women who heard of the website through other channels could also enroll. After completing a short questionnaire, participants received an email every four weeks, tailored to the stage of pregnancy. The emails provided interactive questions, including answers, on six lifestyle topics and links to appropriate websites. Program reach was assessed of the midwifery visitors only, as the number of website registrations and the number of participants who continued to use the program throughout their pregnancy. Measures of program use included: opened lifestyle topics and related websites visited.

Results: 17% (238/1382) of the women who received information through their midwife enrolled. Highly educated women (68%) and women with a healthy lifestyle were overrepresented compared to the target population. 52% (120/238) of the participants continued to use the program throughout their