Addressing Patient Adherence Issues by Engaging Enabling Technologies

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Abstract One of the well known issues providers have contended with for many years is the issue of patients’ adherence to their care plans and medications outside clinical encounters. In this workshop, we review proof of concept studies using technology at the point of care to assess patient literacy and self-efficacy to provide timely intervention, remedy, and improvements in cost and quality. We focus on patient-generated information, including patient reported data and measurements from devices and sensors, as key to improving patient safety, gaining “meaningful use” data, improving patient centric care, and assisting providers in learning more about their patient needs to improve outcomes. We look into barriers to adherence, basic understanding of the patients and providers roles in improving adherence, and the use of technology to assist patients in staying on track. The participants will address their findings in the integration of patient-generated information into everyday life and clinical practice and share lessons learned from implementing these designs in practice. This workshop aims to share requirements for the next-generation healthcare systems, especially in areas where the explosive availability of patient-generated data is expected to make impacts.

Keywords. Medication adherence, Patient compliance, Patient-generated data.

Introduction of the topic

Patients’ adherence to care plans and medications is a common problem and has posed tremendous challenges to providers. Reportedly, in the EU alone, it accounts for 194,500 deaths a year and costs 125 billion Euros annually. In US, it accounts for 69% of medical-related hospital admission and adds $100 billion and $290 billion annually in terms of excessive hospitalization and avoidable medical spending respectively.

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Non-adherence is especially insidious to chronic care, with less than 50% of patients of chronic conditions adhering to the clinical recommendation and 20-30% of prescriptions that are never filled.

As most of the adherence-related behaviors take places outside the clinical encounters, keeping track of adherence behavior in a patient’s own life context is critical. Some pilots in UK, France and Belgium have included pharmacists in the loop to gather exogenous data points of patient adherence. The advances in mobile, wearable and embedded technologies have enabled the collection of patient-generated data and hence a new generation of tools that can measure patients on a continuous basis. This can further bringing patients themselves in the loop via evidence-based conversations.

1. Aim of the discussion

This workshop will gather requirements for addressing patient adherence issues by engaging enabling technologies. In particular, this workshop will focus on patient-generated information, including patient reported data and measurements from devices and sensors, as key to improving patient safety, gaining “meaningful use” data, improving patient centered care, and assisting providers in learning more about their patient needs to improve outcomes. This workshop aims to share with leading practitioners and researchers at MIE their efforts to gather requirements for the next-generation healthcare systems, especially in areas where the explosive availability of patient-generated information is expected to make impacts.

2. Contribution from each speaker

Dr. Ball (Moderator) will review studies using technology at the point of care to assess patient literacy and self-efficacy, aiming to provide timely intervention, remedy, and improvements in cost and quality.

Dr. Partovian’s presentation will address the potential and impact of patient-generated data on adherence from the practitioners’ viewpoint. She will discuss the difference between the traditional model and the “real world” model, the obstacles, e.g., the shift of power dynamics in decision-making, and IT design issues, e.g., local adaptation within established parameters, joint knowledge gathering and sharing, coping with challenges, and learning from setbacks.
Dr. Patel’s presentation will address how part of a successful provider-patient interaction is sharing the patient empowered info with providers and making decisions based on this shared information. Lay publics’ mental models are different from that of the practitioners, and the extent of match between these models during encounters will dictate the extent of successful communication. Dr. Patel will address the question of mental model mismatch that results in not only the errors, but conceptual misunderstandings, as well as the nature of data collected which could provide better interpretation of patient thoughts in real time.

Dr. Hsueh will discuss findings in the integration of patient-generated information into everyday life and clinical practice. She will review the requirements of IT and analytics for adherence risk mitigation and share lessons learned from touch-point analysis that aims to translate the heterogeneous non-clinical patient information “in the wild” into actionable plans. Specially, adding patient generated info to enterprise data provides for a 360 degree view making it possible to avoid unnecessary suffering and waste of resources.

Dr. Martin-Sanchez will present the impact of participatory health movement on health informatics from the perspectives of evidence generation and personalization. He will also describe several research projects where this new role of the patient has been associated with positive health outcomes through the use of new technologies such as social media, the quantified self, personal genomics, patient reported outcomes and shared decision making. Particularly, patients’ access to clinical notes and records will be presented as an illustrative example.

Dr. Marschollek will address the potential of using data generated by ambient and wearable sensor systems for improving diagnostics and therapy adherence, from both the physician’s and the patient’s point of view. He will also report on barriers of using sensor data, with regard to HIS architectures, data quality/credibility, and challenges in data analysis. Finally, current evidence on added value of these additional data will be reflected critically.

3. Expected results

The workshop will address research questions related to patient-generated data for adherence management, report on the lessons learned, and leave time to gather requirements and questions from the audience. The highlights of this workshop will be shared with the audience.