

## The Virtual Patient for Improving Quality of Care in Primary Healthcare

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<b>Organization:</b>	Massachusetts General Hospital
<b>Mechanism:</b>	PAR: HS 08-269: Exploratory and Developmental Grant to Improve Health Care Quality through Health Information Technology (IT) (R21)
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**Summary:** Traumatic experiences can have significant impact on mental and physical health. It is well established that trauma is associated with post-traumatic stress disorder (PTSD) and depression. Traumatic experiences are also associated with negative health behaviors, such as poor diet, smoking, sedentary lifestyle, and alcohol and substance abuse. Refugees are an example of a highly traumatized patient population that demonstrates high rates of PTSD, depression, and physical disability. Traumatized refugees seeking health care often face many barriers related to socioeconomic status, cultural and medical worldviews, limited English proficiency, and low levels of health literacy. Primary care providers (PCPs) must be: 1) aware of the trauma-related mental and physical health problems that refugee populations often experience; 2) knowledgeable of the barriers to health care that refugee populations may face and how to overcome them; and 3) able to identify and treat trauma as a medical and mental health risk-factor in a culturally sensitive way.

Dr. Richard Mollica and his research team at the Harvard Program in Refugee Trauma at Massachusetts General Hospital are collaborating with researchers at the Karolinska Institute's Virtual Patient Lab in Stockholm, Sweden, to develop a virtual patient (VP) that will help train PCPs to diagnose and treat trauma-related medical and mental health problems among highly traumatized refugee populations. A VP is an interactive computer simulation that provides a representation of a patient encounter for learning and assessment. The VP has been established as an efficient and cost-effective training tool in health care. This project will implement a VP in primary care settings to help providers build clinical capacity for the cultural and evidence-based identification and treatment of traumatized refugee patients from disadvantaged, diverse backgrounds.

This project is being conducted in two phases. Phase I involved developing the VP  $\beta$ -prototype from the existing VP  $\alpha$ -prototype. PCPs from the Lynn Community Health Center (LCHC) in Boston, Massachusetts, were recruited to participate in the development process. These PCPs participated in a three-part series in which the VP was first described and the VP  $\alpha$ -prototype was presented to the PCPs. Semi-structured interviews and surveys were administered pre- and post-test to collect information on the PCPs' preconceptions, attitudes, thoughts on usefulness, and recommendations for informing the development of the VP  $\beta$ -prototype.

Phase II of the project involves testing the effectiveness of the VP  $\beta$ -prototype to improve the ability of PCPs at LCHC to identify, screen, and treat the physical and mental health problems of the traumatized

refugee patients. The VP  $\beta$ -prototype will be administered to 30 PCPs, including those who participated in Phase I of the project and at least 20 additional, randomly selected PCPs at LCHC. The PCPs will participate in three onsite sessions at which they will be administered clinical cases for patient assessment and the development of a treatment plan, followed by an introduction and review of the VP  $\beta$ -prototype.

A survey will be used to rate the quality of the PCPs' treatment plans pre- and post-viewing of the VP  $\beta$ -prototype. Additionally, the semi-structured interviews and surveys used in Phase I of the study will be administered to the Phase II PCPs pre- and post-viewing of the VP to assess the PCPs' perception of the VP  $\beta$ -prototype as a training and clinical tool. A followup phone call will collect data from the PCPs on the strengths and weaknesses of the VP and their recommendations for improving the prototype.

### Specific Aims:

- Develop a final Virtual Patient  $\beta$ -prototype (from the existing  $\alpha$ -prototype) that is perceived as an effective and engaging learning tool by primary care physicians. **(Achieved)**
- Test the ability of the Virtual Patient  $\beta$ -prototype to improve the primary care physicians' identification and screening of health and mental health problems in traumatized and culturally-diverse patients. **(Ongoing)**
- Test the ability of the Virtual Patient  $\beta$ -prototype to improve the primary care physicians' treatment management plan of the health and mental health problems of traumatized diverse patients. **(Ongoing)**
- Assess the feasibility of expanding the use of the Virtual Patient among primary care physicians at neighborhood health centers. **(Ongoing)**

**2012 Activities:** Questionnaires used for measuring PCPs' perceptions of and experiences with the VP were developed. Eleven PCPs from LCHC participated in the Phase I pre- and post-testing of the VP and the existing VP  $\alpha$ -prototype. Findings from Phase I were analyzed and applied to develop the  $\beta$ -prototype of the VP. A scoring system was developed to be used during the testing of the VP  $\beta$ -prototype, along with two paper clinical cases that will be used in Phase II testing of the VP. Activities for 2013 include recruiting an additional 20 to 25 PCPs to review and score the paper clinical cases and use the VP to assess them to determine which approach results in a more effective treatment management plan.

As last self-reported in the AHRQ Research Reporting System, project progress and activities are completely on track, and project budget funds are somewhat overspent.

**Preliminary Impact and Findings:** This project has no findings to date.

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**Target Population:** Mental Health/Depression, Racial or Ethnic Minorities\*: Bosnian Refugees

**Strategic Goal:** Develop and disseminate health IT evidence and evidence-based tools to improve health care decisionmaking through the use of integrated data and knowledge management.

**Business Goal:** Synthesis and Dissemination

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\* This target population is one of AHRQ's priority populations.