

a basis, learning objectives and structured interactions with programmed characters and objects within the environment enable individual and group learning to achieve educational goals. The environments were developed and deployed on open simulator, an open source virtual platform allowing for low development cost and sustainable use.

**Outcome & Evaluation:** To date, the environments have been used by over 50 learners. The program has been evaluated through review of learner feedback.

**Going Forward:** A formal evaluation of the educational impact of the program and development of environments representing additional international sites is planned.

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**Abstract #:** 2.038\_TEC

### Expanding access to evidence-based medicine to physicians and medical students in resource-poor settings to improve medical education

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**Project Purpose:** UpToDate, an evidence-based, expert physician-authored clinical decision support tool is used extensively in the United States and other regions of the world. UpToDate usage is linked to lower mortality and length of stay in U.S. hospitals. Despite its proven benefits, UpToDate usage in low-resource regions has lagged, due in part to subscription fees. We launched two programs to provide free access to UpToDate to physicians and medical students in these settings and to study its usage and impact.

**Design:** To expand access, we invited qualified physicians who provide care in a resource-poor context to apply for one-year free subscriptions to UpToDate. We also established collaborations with four leading African medical universities in Tanzania, Rwanda, Malawi, and Uganda to provide free five-year subscriptions to UpToDate to all medical students and faculty (n = approximately 6,000). To study UpToDate's impact on medical education, we are conducting a prospective observational cohort study. We will track usage patterns of UpToDate and the educational performance (examination scores) of medical students to understand the impact on medical education.

**Outcome & Evaluation:** We evaluated the provision of access to physicians by analysing their usage patterns. Since 2009, over

1,500 individual physicians and healthcare institutions have received free access to UpToDate through our program. During 2013-2014, 449 active users logged into UpToDate approximately 150,000 times. 61% of users logged in at least weekly. Users from Africa were responsible for 54% of the usage. Specifically, users from Rwanda accounted for 19%, from Tanzania for 5%, from Uganda for 2%, and from Malawi for 1%. Search patterns reflected local epidemiology with "Clinical manifestations of malaria" as the top search in Africa, and "Management of Hepatitis B" the top search in Asia. Evaluation of access to medical students is ongoing. So far, we have conducted focus groups with 29 faculty members and 99 medical students in two universities in Tanzania and Rwanda.

**Going Forward:** If we demonstrate a positive impact of UpToDate on medical education, we intend to expand our efforts to other universities in resource-poor settings.

**Funding:** UpToDate subscriptions for physicians and medical students were donated by Wolters Kluwer.

**Abstract #:** 2.039\_TEC

### Armenia's road to eHealth: Causative impact on eHealth literacy via gaps in post-soviet Armenia's digital divide

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**Background:** Although Internet use in Armenia has increased from 4%-28.7% from 2004-2011 it is unclear what gaps currently exist in the Republic of Armenia's digital divide (Pearce et al., 2013). The objective of this study was to assess and examine eHealth literacy in relationship to s between level of education level, urbanization, obesity, age, economic status, and Internet digital use and eHealth literacy.

**Methods:** In collaboration with Armenia's Ministry of Health, an IRB approved (00082410) cross-sectional study was conducted in five provinces in Armenia, to assess and examine eHealth literacy in relationship to level of education, urbanization, age, economic status, and Internet use. SAS statistical software analyzed the standard descriptive statistics as well as associations among continuous and categorical variables. The eHealth Literacy Scale (eHEALS) was used to assess participant's perceived skill using information technology for health purposes (Norman et al., 2006).

**Findings:** 517 participants (15.58% male; 84.42% female) ages 18 to 89 (mean age 47.25) were recruited using convenience sampling from clinics recommended by Armenia's Ministry of Health. 69.49% of those surveyed lived in cities, 77.7% lived below the poverty line, and 29.72% had university/college education. While 89.8% and 22.75% reported owning a cellphone and smartphone respectively, 25.35% didn't have access to the Internet. 27.6% accessed the Internet with their cell/smartphones and 32.7% used cell/smartphones to send receive text messages. 42.28% of all those who had Internet at home were 35-54 years old (p = .0004). Age (p < .0001), education (p < .0001) and financial status (p < .0001) were significant determinants for access to the Internet. There was significant difference in education level (p < .0001), income level (p < .0001), foreign language

proficiency ( $p < .0001$ ), and correlating eHealth Literacy. The greatest difference was between University/College graduates (Mean = 307.92) and those who didn't finish high school (Mean = 165.37).

**Interpretation:** Identifying digital divide gaps diagnoses barriers to equitable, effective eHealth initiatives, and reveal foundational actions that help pave Armenia's road to effective eHealth. Social

Entrepreneurship Programs and educational policies for improving eHealth Literacy should focus on providing health information in Armenian language and focus on populations with less education and lower incomes.

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