

Cambridge, MA/US, ³Northwestern University Feinberg School of Medicine, Chicago, IL/US, ⁴Massachusetts General Hospital, Boston, MA/US, ⁵Harvard University, Cambridge, MA/US, ⁶Newcastle University Medical School, UK, Newcastle-upon-Tyne, UK

Program/Project Purpose: The lack of properly trained health care professionals in resource-limited settings has become a key constraint to the targeted completion of the UN's Millennium Development Goals. At the same time, the use of low-cost technological devices to disseminate educational information across the developing world is becoming increasingly common. The purpose of this study was to assess the feasibility and impact of using a low-cost Android tablet called *connecTAB*, to deliver clinical skills training to third-year medical students in Kenya via demonstrational videos.

Structure/Method/Design: The tablet was designed and manufactured specifically for areas with low bandwidth and was extremely low cost (\$50 per tablet). Instructional video tutorials demonstrating clinical examination techniques of the cardiovascular and abdominal examination were pre-loaded onto the tablet. 51 3rd year medical students from Maseno University, Kenya, were subjects in the study. Students volunteered to participate in the program in response to an email solicitation from the school's administration sent to the entire student body. Students were informed that participation was voluntary and that they would be required to complete a pre and post-study questionnaire, as well as a pre and post-study clinical assessment. Students were also notified that they would be randomly allocated to either the intervention group or the control group. 25 students were assigned to the intervention group and 26 to the control group. At the start of the study, students from both groups completed an Observed Structured Clinical Examination (OSCE) of a cardiovascular and abdominal examination. Students who were allocated to the intervention group then received the *connecTAB*, whereas students in the control group did not. After a period of three weeks students from both groups completed a post-study OSCE for both the cardiovascular and abdominal evaluations and at the conclusion of the study students in both the control and intervention group received a *connecTAB*. To ensure the project remains sustainable students paid a nominal fee for the tablet.

Outcomes & Evaluation: There were significant improvements in score for both cardiovascular and abdominal examinations ($p < 0.001$), within the group who received the *connecTAB* when compared to the control group.

Going Forward: The potential of the *connecTAB* program, utilizing affordable technology equipped with open access videos, should be explored further in different contexts such as post-graduate training of doctors, and with populations such as nurses and community healthcare workers. It would also be useful to assess the long term retention of clinical skills. If *connecTAB* proves effective in these other environments, then it may well be worth scaling up the project to other resource-deficient parts of the world.

Funding: The project received an unrestricted grant from The Ujenzi Charitable Foundation.

Abstract #: 011TIS025

International comparison of smartphone use by resident physicians

S. Raaum¹, C. Vallejo², A.M. Patino³, C. Arbelaez³, C. Milne⁴; ¹University of Utah, Salt Lake City, UT/US, ²Universidad de Antioquia, Medellin, CO, ³Harvard Affiliated Emergency Medicine Residency Program, Boston, MA/US, ⁴University of Utah and George E. Whalen Department of Veterans Affairs Medical Center, Salt Lake City, UT/US

Background: In the US, clinical use of smartphones has increased dramatically over the last decade. Little is known about current patterns of use and use internationally. Residents are often early adapters of technology. The purpose of our study was to better understand the use of smartphones by residents in two partnering international sites and compare with use in our own clinical sites.

Methods: Our survey was designed to capture demographics and smartphone ownership, as well as patterns, perceived barriers and benefits of use. The survey was piloted in fall 2013 and after IRB approval was distributed in spring 2014 to a convenience sample of residents in the US (at the University of Utah and Brigham and Women's Hospital, Boston, MA), Universidad de Antioquia in Medellin, Colombia, and Hainan Medical University in Hainan, China. Participation in the survey was voluntary. Chi-Square and Kruskal-Wallis tests were performed to identify significant differences between groups.

Findings: A total of 444 residents responded to the survey, 273 (61%) from the two US sites, 35 (8%) from Colombia and 136 (31%) from China. The majority of respondents owned a smartphone (90% of Chinese, 94% of Colombians, 97% of Americans). Fewer Chinese residents used smartphones in the clinical setting (81%), when compared to Colombians (97%) and US residents (98%). In addition, reported amount of use was significantly less in the Chinese sites ($p < 0.0001$). In the US and Colombian sites, the top three smartphone uses reported were e-mail, internet access and texting between team members; whereas in the Chinese site the most frequent uses were internet access, calendar and medication formularies. The least used function in all three countries was physician order entry. Overall, use of smartphone functions was significantly different between countries ($p < 0.0001$). The overwhelming majority of respondents reported they felt smartphone use improved clinical care (94% in the US sites, 97% in both the Colombian and Chinese sites). Prior education in smartphone use was low in all countries (19% in US, 14% in Colombia and 17% in China). Significantly more respondents in Colombia and China desired additional training opportunities (88% in Colombia, 86% in China, 51% in US).

Interpretation: We describe the utilization of smartphones at two US institutions and partnering international sites in Colombia and China. While smartphones are ubiquitous in clinical care, use varies by country. Interestingly, despite differences in use almost all respondents feel that smartphones improve clinical care. Also, international respondents requested more learning opportunities. Our results are limited by the convenience sample and survey design. Despite these limitations, the high rates of smartphone use and interest in smartphone education described in this study suggest a high demand for smartphone education.

Funding: No external funding source.

Abstract #: 011TIS026

Facility mapping: A tool for effective planning for MNCH services

B.M. Ramesh¹, A. Kumar. Ghosh², V. Prakash³, M. Sharma³, S. Rajaram⁴, A. Kar⁴, A. Gaikwad⁴, N. Kumar Pradhan⁵, J. Krishnamurthy⁴, M. Crockett⁶, L. Avery⁶, S. Moses⁶, J. Blanchard⁶; ¹India Health Action Trust, Lucknow, IN, ²National Health Mission, Uttar Pradesh, India, Lucknow, IN, ³National Health Mission State Program Management Unit, Lucknow, IN, ⁴Karnataka Health Promotion Trust, Bangalore, IN, ⁵Uttar Pradesh Technical Support Unit, Lucknow, IN, ⁶University of Manitoba, Winnipeg, MB/CA

Background: Improving outcomes in maternal, newborn and child health (MNCH) depends substantially on improving the