

JOHNS HOPKINS UNIVERSITY GLOBAL mHEALTH INITIATIVE

# Digital Roundup

Volume 3  
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# JHU-GmI Update & Spotlight



## Coming soon! The JHU-GmI Interview Series Women of Digital Health

Our first interview will be with Dr. Olivia Vélez the Senior mHealth Advisor at ICF International. She is the current eHealth Lead for USAID's Maternal and Child Survival Program

Dr. Vélez has more than 10 years of professional experience in health informatics and has advanced training in computer science, public health, and nursing, as well as clinical experience in the areas of women's health and pediatric HIV/AIDS. At MCHIP, she is leading the strategy for the use of mobile devices to address reproductive, maternal, newborn and child health challenges in the developing world. Dr. Vélez is an author on over a dozen peer-reviewed papers on health informatics and has presented her work on mobile health at both national and international venues including the mHealth Summit, the United Nations Economic and Social Council Partnership Clinic on Mobiles for Midwives, and several informatics conferences.

Prior to coming to MCHIP, Dr. Vélez was a National Library of Medicine Post-Doctoral Fellow at Columbia University in Biomedical Informatics. She designed a mobile clinical decision support tool for Millennium Villages Project midwives in Ghana and was a 2010-2012 Jonas Clinical Nurse Leaders Scholar. She maintains an affiliate faculty position at Columbia.

Stay tuned for this exciting interview with Dr. Vélez

## Recent Projects

### **Knowledge Exchange vs Web 1.0 for Community Health Workers**

RCT to assess the added value of Web 2.0 functionality (knowledge/resource sharing, question and answering, "liking" and commenting) over Web 1.0 provision of information resources, tied to a custom taxonomy (and query interface) for CHWs.

### **Khushi Baby: Randomized Control Trial to Determine the Peer Effect of a Novel NFC Necklace for Immunization Records and the Effect of Voice Call Reminders before Immunization Camps on DTP adherence rate in Rural India**

## Recent Publications

### **Feasibility and Acceptability of Smartphone-Based Ecological Momentary Assessment of Alcohol Use Among African American Men Who Have Sex With Men in Baltimore.**

Yang C1, Linas B, Kirk G, Bollinger R, Chang L, Chander G, Siconolfi D, Braxton S, Rudolph A, Latkin C.

### **Nepali earthquakes and the risk of an epidemic of hepatitis E**

Buddha Basnyat, Harry R Dalton, email, Nassim Kamar, David B Rein, Alain Labrique, Jeremy Farrar, Peter Piot on behalf of 21 signatories

### **Most viewed GHSP article for the past year! mHealth innovations as health system strengthening tools: 12 common applications and a visual framework**

Alain B Labrique, Lavanya Vasudevana, Erica Kochib, Robert Fabricant, Garrett Mehld

# mHealth News in Review



**Online patient community boosts self-efficacy, self-management among epilepsy**

A small study of veterans with epilepsy, conducted by PatientsLikeMe and sponsored by pharmaceutical company UCB, shows that an online patient community can increase self-efficacy and self-management of patients. The study was published in the journal Neurology.

## **Cleveland Clinic opens up its mHealth platform**

The Cleveland Clinic is taking MyCare Online out of beta and opening up mHealth access to anyone in Ohio. The online service is available through the Cleveland Clinic MyCare app, downloadable from the health system's web site, Apple's App Store or Google Play. It offers 24-hour-a-day access via secure video link to a healthcare provider through a mobile device, tablet or desktop PC.



**Blood donors in Sweden get a text message whenever their blood saves someone's life**

Sweden's blood service is enlisting new tech to push back against shortages. A new initiative, where donors are sent text messages telling them when their blood has been used, has caught the public eye. People who donate initially receive a 'thank you' text when they give blood, and get another when their blood enters somebody else's veins.

## **New telemedicine platforms focus on one-stop shopping**

Avizia Telehealth proposes to combine all the elements of a telemedicine solution into one package, offering an end-to-end platform that links software, carts and peripherals into a healthcare provider's EHRs and back-end systems. "We're evolving away from the world of telemedicine pilots and toward enterprise telemedicine," Baird said. "It's not about the pilot any more. It's about setting something up that they can scale across the network."



**Johnson and Johnson subsidiary launches realtime health map app powered by Sickweather**

McNeil Consumer Healthcare, the Johnson & Johnson subsidiary that makes over the counter medications like Tylenol and Zyrtec, has released a new mobile app, called Healthyday, that uses crowdsourced data to inform users about location-based allergy, cold, and flu trends. The app is the first to make use of an API from Sickweather,

## **JOHNS HOPKINS UNIVERSITY Global mHealth Initiative**

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**FDA-cleared digital health devices to save healthcare \$100B by 2018**

FDA clearances for digital health devices are on track to triple by 2018, according to new research from Accenture, as digital health offerings drive more than \$100 billion in savings over that same time period.



## When the Signal Fades by Craig Appl

The phones were out again. No voice. The only things that could get through were SMS and queued outbound emails when a mobile data connection happened to grace us with its presence. “Do you have a signal?” we asked each other every 10 minutes. Finally, at 5:00pm we got a connection. The emails streamed in as did messages from our communication apps. We furiously replied, “We’re safe” to everyone who messaged. Then the thought occurred, if this is happening to me, what’s going on with my systems?

I deployed two systems in Nepal as a global health IT project manager. We made assumptions that impacted the availability of these systems when they were most needed, just after the April 25th earthquake. The telecommunications infrastructure rapidly returned after the initial event, but usage overburdened the systems denying access for many. I simply hadn’t planned for something of this magnitude. Major projects often have contingency plans that may be overlooked by small-scale implementers and organizations. This article shares some of the lessons I learned in the immediate aftermath of the quake so you can have a view into planning for disaster.

Electricity cut off when the ground started shaking. Immediately, everything switched to batteries or generators and the countdown began until these power resources began to fail. Everyone rushed outside to open areas where things couldn’t fall on them. This included any field, parking lot, traffic circle and even the middle of the street. Then, we started calling relatives to see if they were safe. Dense populations in such a small area made it challenging for any of us to connect.

mHealth systems rely on a backbone of power and network connectivity. Most often the information flows from a device to a central server through that backbone. In this situation, that backbone failed and every individual had to scramble to find an alternative method.

Our phones connect to centralized towers that cover a geographic area. These towers have a limit to the number of active connections at a given time. This is why we often see mobile towers for network operators stationed

**"We didn't consider the event of total failure when trying to access these cloud services that were hosted in foreign countries."**

stationed at major events. These mobile units increase the capacity when masses of people gather in a small geographic area. This means that some areas didn’t have any mobile data problems, but others were completely inaccessible. Therefore, phones with larger or more powerful antennas could get better reception. After some time, we discovered this and started walking around Kathmandu to find an area with access.

Landlines, such as ADSL or ISDN, run from central locations out through a number of signal strengthening repeaters until they reach your building. Each of these repeaters require power. Failure in a single node, such as a generator running out of diesel fuel, could cause the entire downstream system to stop working. We had access to an ADSL line that didn’t work during this time unless the electricity provided by the government was working. Clearly, the normal backup mechanisms provided by the internet service provider didn’t work.

As an individual, this meant that normal services on my smart phone didn’t work. I often got “network busy” messages when trying to make calls, SMS went through with a 10 to 30 minute delay and my outgoing emails were being sent by my Gmail application because it constantly attempted to send them through mobile data. Incoming emails came in only once per day because they require a steady stream of data connectivity to download to the phone. Viber, Whatsapp and Vover messages came in whenever we had a moment of mobile data connectivity.

*Continued . . .*

My maps app didn't work because I hadn't saved Kathmandu for offline use. Fortunately, a friend of mine suggested OSM and a few months earlier, which I downloaded for offline access to all of Nepal's OpenStreetMap data. This saved me because I was separated from my family and didn't know the shortest walking route to meet them kilometers away.

As an IT project manager, the lack of a digital contingency plan caused failure in the deployed systems. Our systems were deployed in the cloud with appropriate security and nightly backups. Each phone had the capability to store offline data until it was synced. We didn't consider the event of total failure when trying to access these cloud services that were hosted in foreign countries. Of course, we had paper forms needed to complete mission critical tasks but, there was a learning curve and supply issue switching back to paper from digital. Access was restored three days later, but buildings weren't safe. Only a few laptops were available to return to normal work and perform retrospective data entry.

So, what can we do to be prepared in the future? First, project managers can think through their mission critical assets and data needs. Then identify and test alternate ways to run these workflows without reliable network and power backbones. For example, a local backup of a cloud system may be appropriate for this use case or alternative data entry methods, through voice or SMS, may be warranted. Simulation is key here and I recommend that you practice what needs to happen when normal operations aren't available.



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You can find more of Craig's experiences in global health, project management and information technology on his blog GH + PM + IT found at: [craigappl.github.io](http://craigappl.github.io)

Craig works with the Grameen Foundation in Seattle as the Lead Technical Program Manager of Mobile Innovations. He graduated from JHU with an MPH in public health informatics in 2013.

You can contact Craig at:

<http://craigappl.github.io/contact>



One of our shared struggles is bridging our infamous Hopkins Silos; perhaps this monthly newsletter can serve as a vehicle to disseminate some of our distinct, yet common activities. Let us know what you're working on, if you've published recently, or if you have any other item of mHealth interest. If you're a student and want to talk about your experience in the field or a project you're passionate about, please share.

If you have an idea of something you would like to see in the newsletter or would like to contribute an article, interview, review of a tool/service, the input/help is appreciated. Do not hesitate to contact me ([yc.mealth@gmail.com](mailto:yc.mealth@gmail.com)) if you would like to participate. Please note that the deadline for any upcoming issue is the 3rd Friday of the month, early submissions are always welcome.

-Yorghos

# Upcoming Events



**mHealth + Telehealth World 2015**  
Boston, USA  
21-23 July 2015



## JHU-GmI Events

No current events

If you have ideas for events you'd like to see, please contact [yc.mhealth@gmail.com](mailto:yc.mhealth@gmail.com)



**China Health Innovation Convention mHealth**  
Shanghai, China  
6-7 September 2015



**EHST Intl Symposium on eHealth**  
Rhodes, Greece  
17-18 September 2015



**Digital Health Days**  
Stockholm, Sweden  
23-25 Sept 2015



**Intl Conference on Current and Future Trends of ICT in Healthcare (ICTH)**  
Berlin, Germany  
27-30 September 2015

If your Department or Center is holding an mHealth related event, let us know in advance so that we can help promote it! Send details to [yc.mhealth@gmail.com](mailto:yc.mhealth@gmail.com)