

Moderator:

Al Hammond

What are the different ways we measure nourishment currently?

Jeanette Stein (University of Washington) and Simone (Bioanalyt) give presentations on their different methods of measuring nutrients.

Bioanalyt is currently able to measure 4 out of the 'Big 5'. The sample must be in liquid form, but this still allows for measurement of soils and food. They currently are only able to measure Vitamin A levels in human blood. The test is fast (takes no more than 5 minutes) and their machinery is relatively small and light and has been used in the field. They do not do simultaneous testing.

University of Washington is currently able to measure all of the Big 5 micronutrients in human blood with very high accuracy. They have been using the 70lb mass spectrometer and have tested using the smaller (size of a shoe box) spectrometer, but the accuracy is not as great. They are constantly refining their techniques and have seen drastic, rapid updates in mass spectrometers over the past few years and anticipate the trend to continue. Using the 70lb spectrometer, they are able to measure the levels of 5 micronutrients simultaneously in just 3 minutes. They have not field tested yet.

What are current costs and what are projections for 5 years from now?

Bioanalyt - 5000 euros for the machinery, 5 euros for each testing vial. They see these costs dropping dramatically and a large expansion in which micronutrients they test.

UofW - They haven't moved operations out of the lab yet, but expect that setting up an external testing facility would cost approximately \$50k. There would be little to no cost for testing materials (simply would need a tooth pick to prick someone's finger). They hope and expect that the cost and mass spectrometers will drop drastically in the coming years. If true, this would allow them to eventually bring their model to a handheld device that is widely affordable.

Given the updates in technology, what are the best ways to share this information so that we can have a large database?

Contributions came largely from HETN, Bioanalyt, McKinsey and Al. There was consensus on the need for a common data capture system. Bioanalyt and HETN expressed willingness to contribute data to a common database. The conversation then moved to a discussion of how to offset costs of testing in developing countries and build a larger network. HETN suggested offering testing for a cost (similar to 23andMe genetic testing) thereby building awareness, bringing down cost, and most importantly, building a baseline.

Major concerns raised:

- Will cost come down fast enough?
- Who will be responsible for housing all of the data?

- Should this take the form of simple data collection or intervention?
- What is the final purpose of gathering this information?
- Who are potential funders in this endeavor?