Nicaragua 2010
Visit to Path Nicaragua Office
Richard Anderson
Yolaina
Feedback on Nicaragua Visit

- Requirements gathering for Smart Connect project
- Identify collaboration opportunities for HMIS project portfolio
- Gain familiarity with Nicaraguan public health system
Smart Connect

- Develop a low cost device to bring a “digital dial tone” to rural health clinics
Smart Connect

• Facility based device for low bandwidth data communication
  – Initial implementation SMS messages using GSM
• Rural clinic with vaccine storage
  – Temperature monitoring and alerts
  – Reporting stock levels
• Partners
  – Development partner: Inveneo
  – Deployment partner: Path Nicaragua

1/19/2010 Nicaragua 2010
Cold Chain Equipment Management (CCEM)

- Manage and forecast cold chain equipment needs based upon a national equipment inventory
  - MS Access based inventory management / forecasting tool
    - Initial development at Path
    - Revision by external software company
    - Ongoing product management by Path
Handheld CCEM

• Implement components of CCEM on mobile device
  – Data collection for equipment inventory
  – Facility level evaluation of required refrigeration capacity

• Partner with UW
  – Implement on Android phone with ODK
  – Focus on smart phone capabilities
• Systematic, architected rational approaches to ICT systems and solutions
  – Methodology for gathering user and systems requirements
    • Facilitated workshops with users, experts, and stakeholders
    • Templates for Health Usage Scenarios
    • Define business processes and workflows
Monday, January 11 (with JJA)

• Morning, MINSA, Minesterio de Salud
  – Cold Chain
  – Epidemiology

• Afternoon, Travel
  – SILAIS Managua
  – SILAIS Boaco
  – Health Center, Juigalpa
Yolaina Staff
Yolaina
Yolaina
Tuesday, January 12 (with JJA)

• Nueva Guinea
  – Health Center, Nueva Guinea
  – Health Post – Yolaina
  – Health Post – El Serrano
  – Health Post – La Fonseca

The town of Nueva Guinea has few facilities, but the curious traveler may appreciate visiting a place so out of the way.
  - Moon Travel Handbook
El Serrano: Cuban Doctor with Assistant
Wednesday, January 13

- Morning, MINSA (with Margarita Quintanilla and JJA)
  - Meeting with Minister of Health, Dr. Guillermo Gonzalez
- Afternoon, Managua (with Dr. Maribel Orozco and JJA)
  - SILAIS (to see incidence reporting system)
  - Health Center, Villa Venezuela
  - National Children’s Hospital
La Fonseca
La Fonseca
Thursday, January 14 (with JJA)

- Leon
  - SILAIS Leon
  - Health Center Santa Rosa Del Piñon
- Jinotepe
  - SILAIS Carazo
Friday, January 15 (with Dr. Magda Sequeira)

- Jinotega
  - SILAIS Jinotega
  - Health Post Pueblo Nuevo
  - Health Post Las Cruces
  - Health Center Pantasma
  - Health Post Zompopera (Red Ant Hill)
Jinotega SILAIS district map
Health Post Zompopera
Nicaragua Public Health System

- Health Post
- Health Center
- SILAIS
- MINSA (Ministry of Health)

“Under resourced but functional and rational”
Cell Phone Coverage

- Two companies
  - Claro
  - Movistar
- Claro has much broader coverage for rural areas
- Electricity may have wider distribution than cell phone coverage
  - Did not see any candidate solar + cell phone sites
El Serrano
Health Post Connectivity

• Visit included moderately remote health posts.
  – All were close to cell phone connectivity, some on site, some required a walk up the hill, other it depended on the quality of the phone

• Previously, Health Posts had radios, but these are being phased out where cell phones are available

• Communication from HP to HC often easier than communication from HC to HP

• Travel and visits another important communication mechanism
Cold Chain
Cold Chain
Cold chain

• 1350 refrigerators, including 250 solar. Kerosene is going extinct
• Vaccine distributed monthly to Pacific, once every three months in Caribbean
• Electric refrigerators considered reliable
• Problems with solar refrigerators
  – Primarily with solar generation
Cold chain reporting

- Consistent recording of temperature twice a day
- SILAIS has refrigerator technician
  - On call for repairs
  - Annual maintenance visits
- Vaccination data reported up from Health Posts
Power situation

• Grid power generally good
  – Has improved in recent years (help from Hugo)
• Power lost one evening during visit
• Some health centers identified power as a problem
• Low voltage (should be 110)
• Some sites recently added to grid recently
La Fonseca: Solar Panels (not in use)
Surveillance Reporting

- Reports on diseases and mortality
- Daily or weekly from Health Post to Health Center to SILAIS to MINSA
- Submitted through different mechanisms
  - Phone, Radio, Hand delivery
- Commitment to accuracy at all levels
- MINSA wanted more frequent reporting
  - Complained no data came in on weekends
Use of surveillance data

• Summarize at Health Center and above
• Health Centers and SILAIS generated statistics and used them for evaluating programs and tracking results
Computer Use

• Computers at SILAIS and Health Center
  – Even a few health posts
  – Used for data entry (Excel)
• Internet only at SILAIS level
• Carazo SILAIS has long distance WIFI project to connect with health centers funded by Luxembourg
Incidence Reporting Pilot

• Three month cell phone pilot of incidence reporting
  – Prompted by need for data on cases of Dengue

• 50 phones distributed to facilities in Managua
  – Forms based data submission
  – Frontline SMS

• Considered very successful by all participants
  – Effective data collection
  – Model of facility controlled, special purpose phone worked well
  – Used for incidence reporting and patient tracking
Information flows

• Surveillance data
  – From Health Posts to MOH, collated at various levels

• Immunization
  – Twice daily temperature recording (reported???)
  – Vaccination numbers
  – Adverse reports, incidence reports on vaccination preventable diseases

• Pregnancy tracking
  – HP to HC only?

• Incidence reporting
  – PILOT Program: HC to SILAIS level
What will Smart Connect be useful for? (or other feedback)

• Minister of Health
  – (real time) temperature reporting, surveillance data
  – Comments on participatory design, sustainability, and training

• Epidemiologist
  – Surveillance data every day

• Health center
  – Worry that device will replace radios
  – Tracking pregnancies
  – Communication with Health Posts
Feedback

• Health Posts
  – Reporting surveillance data, emergency communication, reporting vaccinations
  – “If it can send text messages, it can be used for anything”
  – Notification of power off

• SILAIS
  – Temperature data important
  – Surveillance and Incidence data
  – Patient tracking: “abandonment”
Things that didn’t come up much

• Stock reporting and ordering
  – General model for HP supply is to pick up stuff on regular visits and to report back
  – Higher levels have a regular distribution schedule: “vaccines sent out on the 23rd day of the month”