



AL COMMISSIONER
PROVINCE IN 21ST
FEB 1998.



Handheld
Communications
for Health



SATELLIFE

We envision a world a world in which critical health care information is available to all people in need at the point or care.

SATELLIFE leads a global partnership of health care institutions and practitioners, empowering them to communicate and share the information they need to serve their communities and save lives.



SATELLIFE

- 16 years in operation
- Creator of HealthNet, the global communication network for health professionals.
- Supporting the dissemination of public health and medical information to 20,000 health workers in 140 countries
- Currently implementing projects in Bangladesh, Bolivia, Malawi, Nepal, Rwanda, South Africa, Tanzania, Uganda, and Zambia.
- Recognition includes the Stockholm Challenge Award, Tech Museum Award, and Digital Partners Social Enterprise Laboratory Award.

SATELLIFE uses handheld technology to address two major barriers to improving global health:

- Limited access to relevant, current information
- Growing demand for data for decision-making, paired with limited capacity to collect, analyze, and share data



Barriers to Information Dissemination and Data Collection

Literacy

Electricity

Phone

Lines/Internet

Habit

Access

Time

Transportation

Politics of
Information
Ownership



Early Handheld Projects

Red Cross Measles
Campaign, Ghana & Kenya
Moi Medical School, Kenya
Kampala Doctors, Uganda



- Will the technology work?
- Will people use it?
- Will it make a difference?
- Is it sustainable?
- Is it cost effective?
- What are the limits?
- How else will people use it?
- How much should it cost?
- What content do people want?
- Will it interfere with provider/patient relationships?

Sample of Survey Screens

Kenya Measles Survey*

Are you ready to start the survey?

How old are you?

.....

Are you male or female?

▼ Select one...

Did you receive measles vaccine

▼ Select one...

How far away do you live?

▼ Select one...

End

Next

Kenya Measles Survey*

Do you have a domestic worker not

Do members of your household work

What is your usual source of water?

▼ Select one...

What type of sanitation do you have?

▼ Select one...

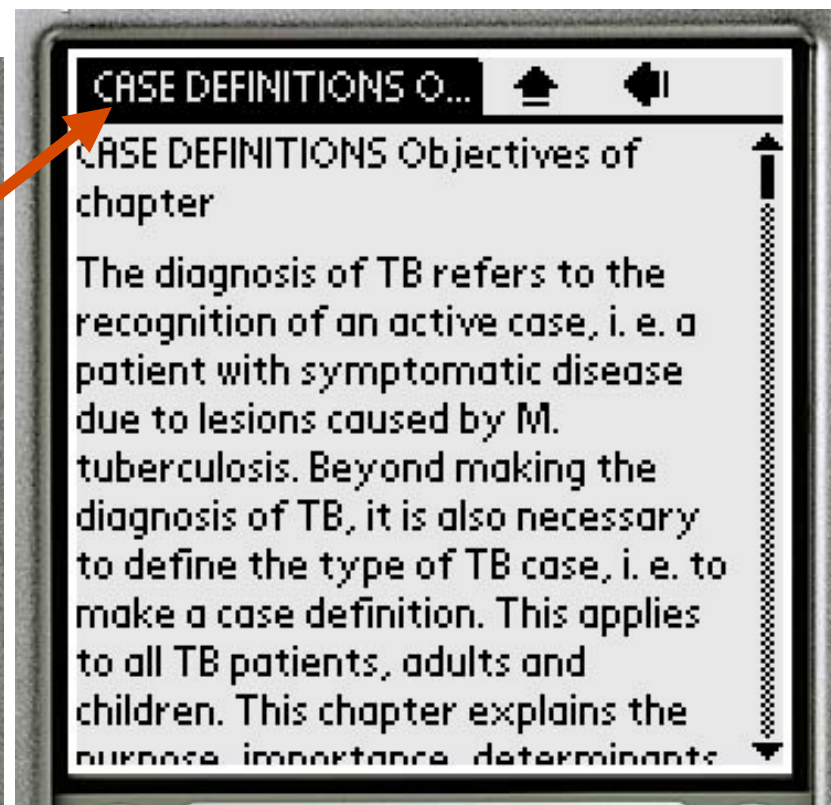
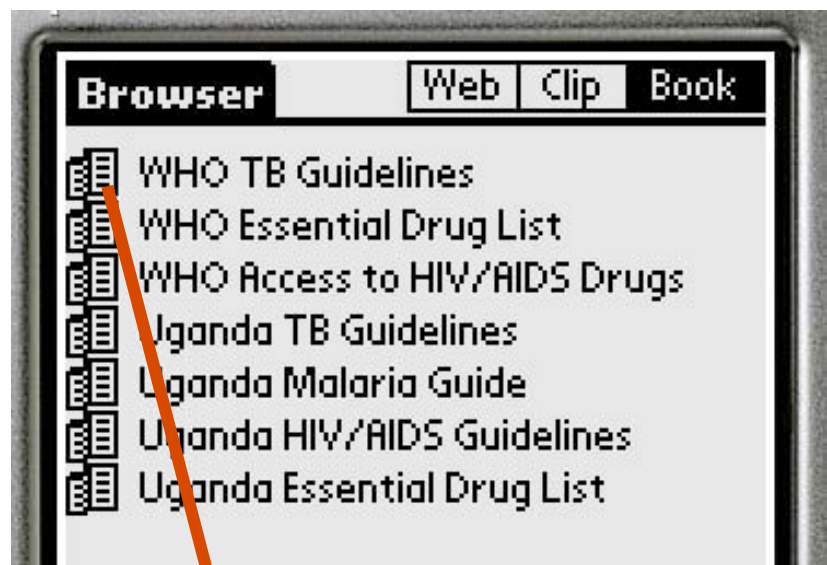
What type flooring do you have in

▼ Select one...

End

Next

Sample of Treatment Guidelines



Community Health Tracking

Satellite Register

Name	Sex	Age	Status
Lalit	M	11	
Mala	F	45	
Palomi			
Piyush			
Prabha			
Rishi			
Tapi			
Virat	M	7	

Demographics
Immunizations
Drugs
Maternity

New Back

DemographicsForm

Name Palomi
ID# 103
Sex ▼ Female
DoB Feb 6, 1996
Marital ▼ N/A
R to H ▼ N/A
Occup. ▼ N/A
Literacy ▼ N/A

Done

Immunizations

	Dose	Last	Given?
BCG	0	--	<input type="checkbox"/>
DPT	0	--	<input type="checkbox"/>
DPTB	0	--	<input type="checkbox"/>
DT	0	--	<input type="checkbox"/>
OPV	0	--	<input type="checkbox"/>
OPVB	0	--	<input type="checkbox"/>
Measles	0	--	<input type="checkbox"/>
Vit A	0	--	<input type="checkbox"/>
Foli	0	--	<input type="checkbox"/>

Done

What we learned:



You must have a local champion who can advocate for the technology.



The basic handheld technology works well, saves time and is a tool that health workers feel comfortable using.



Adding the element of communication complicates things exponentially – but it works to move information efficiently



Training and ongoing technical support are crucial, for the handheld as well as at the backend database

What we learned:



You must have a good understanding of the purpose of the data and the data flow - how it is being collected and used - before creating a handheld alternative.



Content, Content, Content



Health care information systems are complex and process changes at one point may have unexpected complications at another .



Any change in the way people do their work requires careful attention to process and personal issues and must be managed

Next Steps

- Red Cross Blood Donation Program (Uganda)
- POE Commodity Inspections (Tanzania)
- Household Surveys (Nepal, South Africa)
- Performance Monitoring (Nepal, Kenya, Bangladesh, South Africa)
- HIV Test Results Reporting (South Africa)
- Continuing Medical Education (Uganda)
- Surveillance and Utilization Routine Reporting (Uganda, South Africa)





Cost/Benefit Analysis

- Red Cross Measles Immunization Campaign: handhelds greatly increased the efficacy and quality of data collection and saved \$20,000 over paper-based process (not including equipment)
- MRC-SA: Over 10,000 surveys completed, costing half the amount of paper surveys including cost of equipment (amortized over three years)
- SEAM project in Tanzania saw 40% increase in worker productivity and 90% decrease in data entry time.
- UHIN** Cost Benefit: 25% savings (preliminary)



Uganda Health Information Network

Funded by

Fund for Africa - CIDA

Connectivity Africa - International Development Research
Centre, Canada

The Elements



200 Palm 130's



20 "Jacks"

The Partners

SATELLIFE

Uganda Chartered
HealthNet

Makerere University
Faculty of Medicine

Mbale Health District

Rakai Health District

WideRay

IDRC

Data Flow

Jack at health centre



Health worker unit



UHIN
WideRay
Server in
Kampala



Database at
District Office



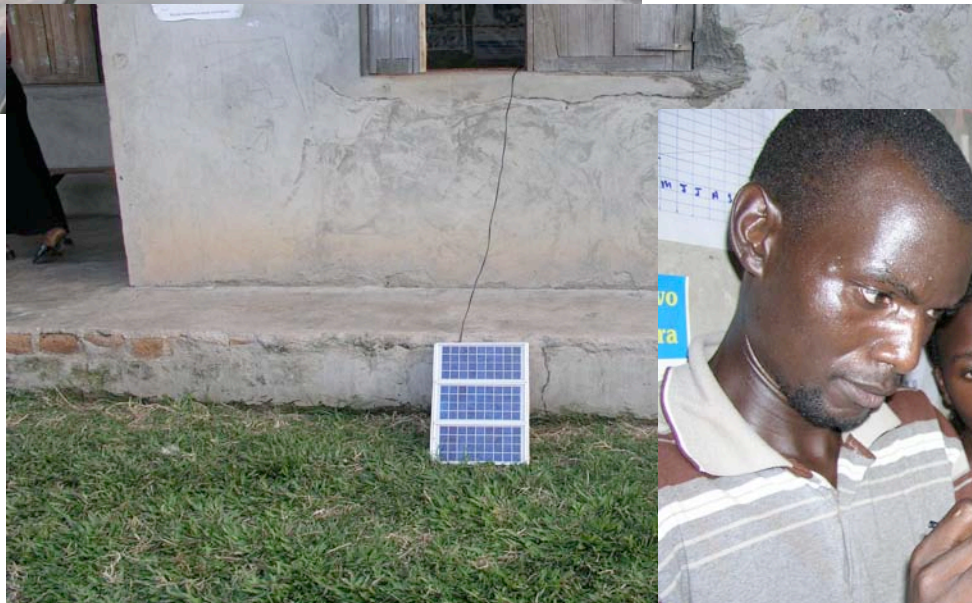
National Health
Information
Management
System

Data and e-mail travel in both directions between the shared “Jack” and HealthNet Uganda. Each “Jack” is programmed to initiate regular phone calls over the cellular phone network to the server located in Kampala.

Public, Secure Jack at the Rakai District Health Office



Long, bad road to remote HCII with no power, but cellular coverage and dedicated health workers.





UHIN Pilot Outcomes

- Technology works to transmit data from rural sites and to provide them with weekly updated CME material, news and jokes
- Cost per site for two PDAs & Jack & solar panel = \$1700
- Savings include the cost of printing and transporting forms, entering data twice and the time to track late and incomplete forms
- Users have shown remarkable interest in having more information and applications, have also been eager to learn to use desktop when they visit the district office

Pilot Outcomes

- District Health Officers have asked for more of the routine data collection activities to be moved to the handheld
- Data flow has increased, forms filed more timely and more completely
- Users and District Health Officers eager to expand coverage in their districts
- Cost Benefit: 25% savings





What Next?

The technology is a tool for us, not an outcome.

We will:

- Focus on content, impact on health outcomes, and local capacity building.
- Leverage existing projects, identify new partnerships.
- Share lessons learned and best practices.
- Explore additional technologies to meet the “continuum” of needs and infrastructure in our target areas.
- Work with the private sector to realize the full potential of these technologies to meet a real and urgent demand for information.



Is There a Market?

SATELLIFE's experience suggests that there is a market for personal electronic devices such as handheld computers.

The widespread adoption of cell phones throughout Africa is an indication of the potential consumer market.

Cell Phone Use in Low-Resource Countries

Country	main phone lines	telephone subscribers	cell subscribers	% cell phone
	<i>per 100 inhabitants</i>	<i>per 100 inhabitants</i>	<i>per 100 inhabitants</i>	
Haiti	1.57	3.25	1.69	51.90
Rwanda	0.28	1.64	1.60	85.20
Ethiopia	0.63	0.77	0.14	18.40
Uganda	0.24	3.27	3.03	92.70
Mozambique	0.46	1.87	2.28	83.70
Tanzania	0.42	2.95	2.52	85.70
Kenya	1.04	6.05	5.02	82.90
Nigeria	0.69	3.25	2.55	78.70
Zambia	0.79	2.94	2.15	73.20
Cote d'Ivoire	1.97	9.40	7.43	79.00
Vietnam	5.41	8.78	3.37	38.40
Guyana	9.15	19.08	9.93	52.00
Botswana	8.28	33.57	25.29	75.30
South Africa	10.66	40.80	36.36	77.70
Namibia	6.62	18.25	11.63	63.70
USA	62.13	116.43	54.30	46.60



What Can NGOs Bring to a Public-Private Partnership?

Small NGOs like SATELLIFE are:

- Innovative problem solvers.
- Agile players in a rapidly changing world.
- Experienced in the field.
- Willing and able to take risks – to a point.
- Able to demonstrate the value of new technologies to a potential market and begin building a local skill base.
- Bring our knowledge to bear on the development of new devices and test them in real-world conditions.



What Can NGOs Bring to a Public-Private Partnership?

We cannot:

- Develop new devices.
- Support widespread deployment of new technologies on a charitable basis.
- Meet the needs of a rapidly growing market.
- Provide ongoing technical support.
- Remain stuck in the “pilot phase” forever.
- Deviate from our mission.
- Go it alone.

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