

International Telemedicine and eHealth: Transforming Systems of Care in the Global Community

**Kathmandu
Nepal
March 2010**



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Alverson, MD
Center for
Telehealth and
Cybermedicine
Research**

THE EARTH IS BUT ONE COUNTRY

And Mankind Its Citizens



JOHN HUDDLESTON

The Potential

- Telehealth and e-health are providing a means to transform systems of care throughout the world, providing greater access to clinical service and consultation, as well as sharing knowledge, education, training and local capacity building.
- Leap-frogging over prior barriers, these information and communication technologies (ICT) also have the potential to offer greater access to these services in developing countries.
- The use of telehealth must be put in the context of the critical health needs in each country, cultural perspectives, current and future communication infrastructure, other supportive resources, and likelihood for sustainability.

The Potential

- Fundamental steps in addressing global health issues include reducing poverty; improving education and health promotion strategies; ensuring access to clean water; and investment in sustainable waste removal and renewable energy programs.
- The mounting concerns related to the HIV/AIDS epidemic, the re-emergence of tuberculosis, increasing issues related to hepatitis C, malaria and the threat of pandemic influenza, all highlight the importance and value of telehealth and international collaboration.

Defining Telemedicine and Telehealth

1. “Tele-” comes from the Greek root word meaning “distant or remote”/ “at a distance”.
 - Tele-phone
 - Tele-vision
 - Tele-graph
 - Tele-scope
 - Tele-Etc, etc, etc

Value of Telehealth

- Using Information, Communication Technologies:
 - Transform systems of care
 - More Efficient Distribution of Limited Resources
 - Increase access and close gaps in health disparities
 - Share knowledge, experience and best practices
 - Increase healthcare workforce
 - Improve health and wellness
 - Decrease costs

How will the Enhanced Telehealth Grid be used?

- **Clinical**
- **Educational**
- **Research**
- **Administrative**
- **Health Information Exchange**
- **Enhanced Disaster Response**

Center for Telehealth and Cybermedicine Research

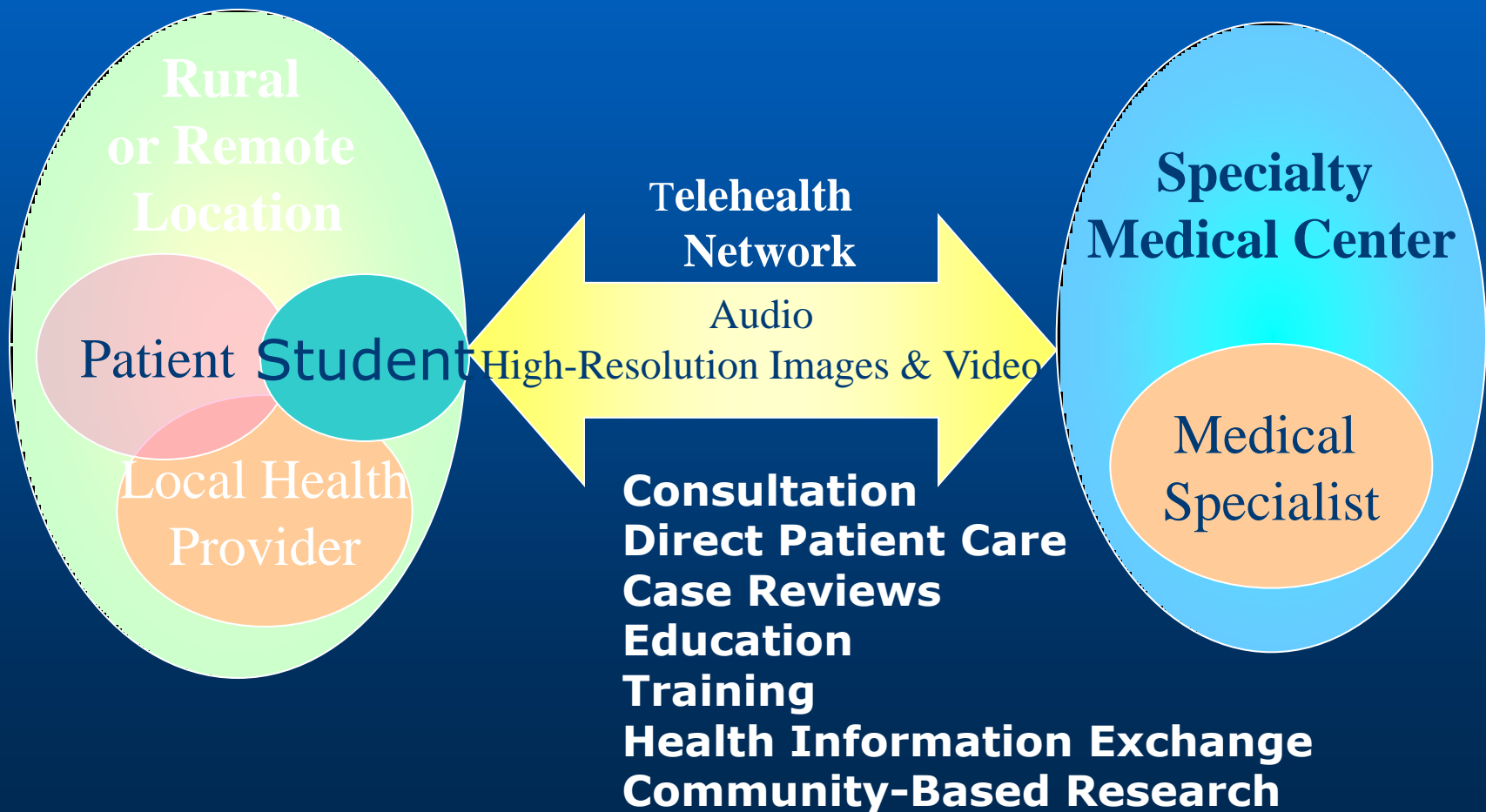


The ***Center*** for
Telehealth
at UNM Health Sciences
Center:
Developing New



Telehealth Networks

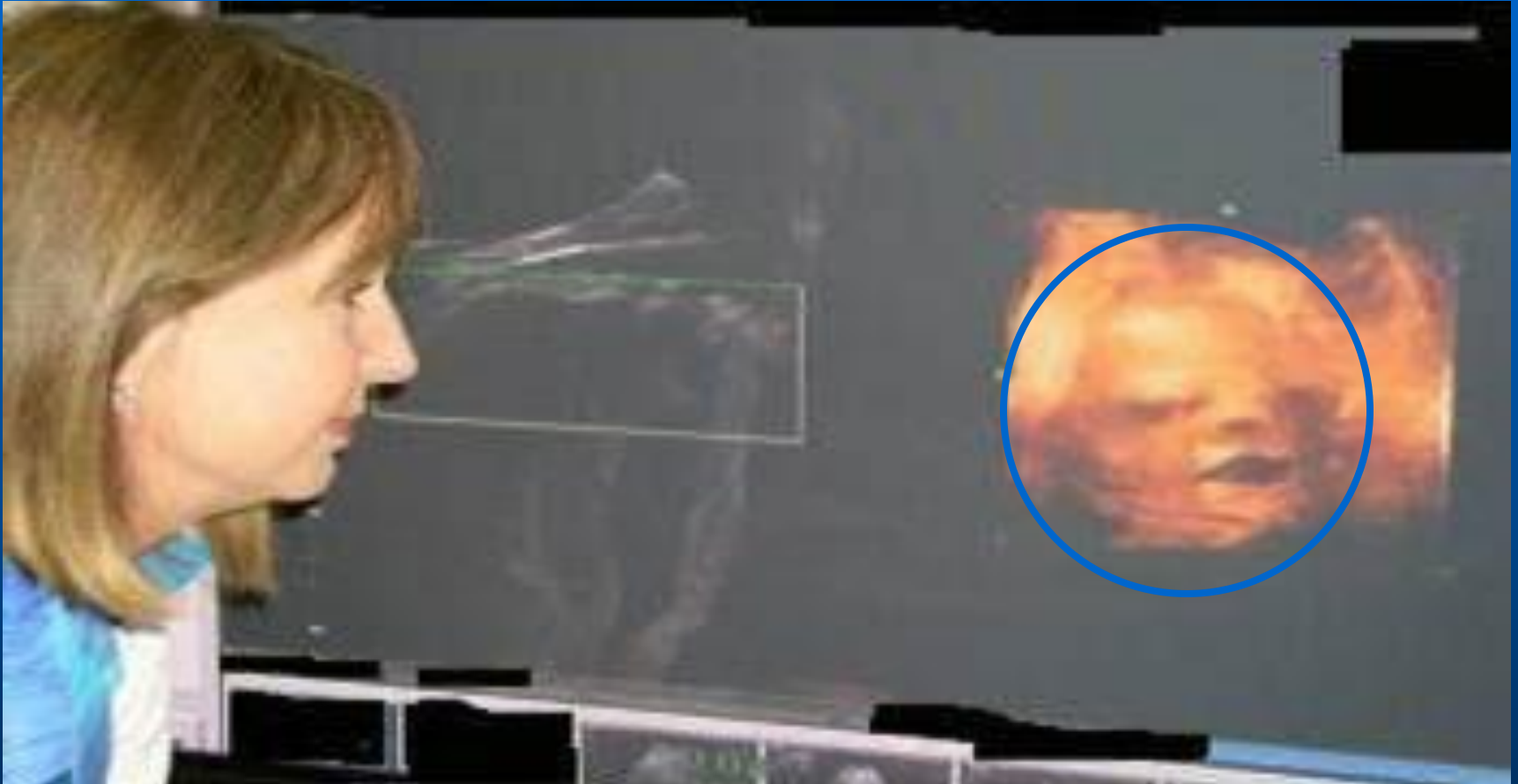
Rural/Remote Health Providers Can Access Expert Medical Opinions,
Knowledge, Education via Telehealth



Case Reviews or Consultation



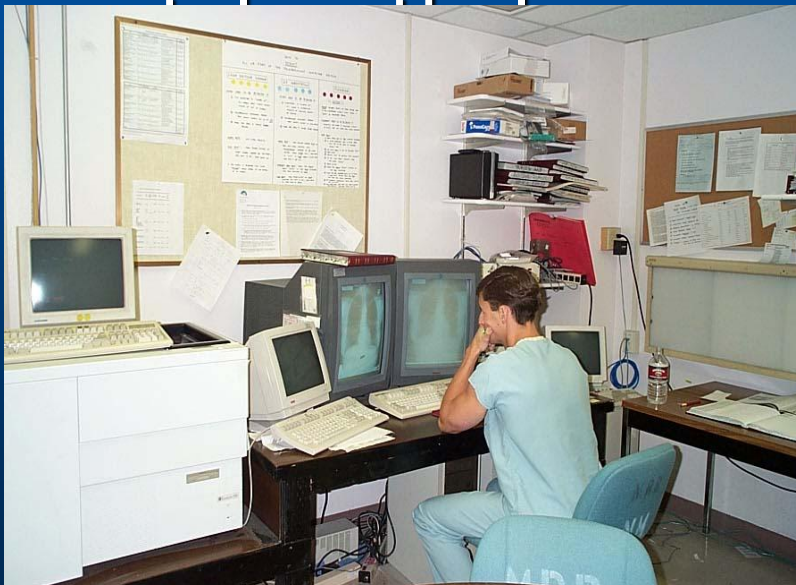
Direct Patient Care



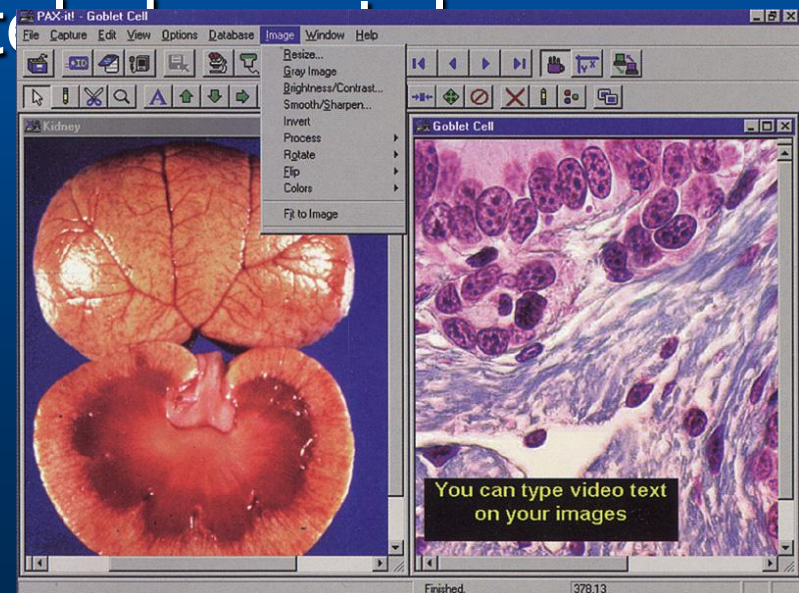
Maternal Fetal Medicine-High Risk Pregnancy

“Store and Forward”

- Capturing an image and **storing** it to then be **forwarded** for review by a medical specialists
- Examples include teleradiology,



Teleradiology and Image Transfer



Web-Based Portals

Family Visitation: Video Phone and VOIP



School Based Health Centers



Trauma Triage

Online Medical Consultant System - Diagnose Case - 2007-20UNMHSC - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <https://www.imedcon.com/Library/UNM%20Health%20Sciences%20Center/Gallup%20Indian%20Medical%20Center/MORRIS%2C%20HARRISON%2C%20200599/2007-20> Go Links >>

Google G Go Bookmarks 30 blocked Check AutoLink AutoFill Send to Settings SnagIt

Division:
UNM Health Sciences ...

Facility:
Gallup Indian Medical
Center

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References

N/A

Consulting Questions

Step A: Before reviewing the case with the supporting information

Question 1: Based on your current knowledge would you have accepted this patient for transport?

Answer: ☒ Yes ☐ No

Step B: After reviewing the case with the supporting information

Question 2: Did you accept the patient for transport?

Answer: ☐ Yes ☐ No

Question 3: Did your management recommendations change?

Answer: ☐ Yes ☐ No

Comments:

Ready to submit advice?

Submit Advice

World braces for flu siege



...in 7th...
detain two security
guards in connection
with missing Al-
abama teenager Na-
talee Holloway, who
was on a high school
graduation trip ■ 3A



By Chris Pappas, AP

'Breakfast Club' at 20

...from the 1985 movie reunite for
MTV Movie Awards, including An-
Michael Hall, left, Molly Ringwald,
edy and Paul Gleason ■ 2D

Plans haul

...quarterly
...ce 1992
...season
...motive
...rethinking
...s ■ 1B



JOHN THORNTON

...try to resume deliberating

...less aren't expecting a fast verdict in Mi-
...incarceration case. Meanwhile, pop star
...agency soon for back problem. 3A.

...case gets narrower focus

...on will witness nearly 500 potential crim-
...against former Iraq leader in a dozen well-
...ment to avoid more delays in trial. 8A.

...Scrushy panel told to try again

...in an appeal against his indictment. 8A.

Quick action may stop global bird flu epidemic



H5N1

Many animals destroyed: A health officer collects ducks to be killed at a farm north of Bangkok last year.

Millions may die if H5N1 virus spreads, agency says

...quickly, and the world is not yet prepared to take
...advantage of it, researchers say. Rich countries are
...stockpiling anti-viral drugs, but there is little avail-
...able in the impoverished backwaters of Southeast
...Asia where the virus is thought to have first emerged.

U.S. step up nuke detection at ports

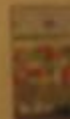
Critics say money
to buy faulty moni-

By Mimi Hall
USA TODAY

WASHINGTON — The fed-
eral government is stepping
up efforts to stop terrorists
from smuggling nuclear or
radiological material into
the USA, even as critics fault
it for poor planning and out-
dated equipment.

The government is
spending hundreds of mil-
lions of dollars to screen
more cargo at the nation's
ports, test next-generation
radiation detectors and de-
velop intricate plans to track
deadly weapons if they are
brought across the borders.

Just last week, the de-
partments of Homeland Se-
curity and Energy broke
ground on a \$35 million nu-
clear and radiological coun-



Bury

...Presi-
...dent
...in 2001

...Low
...\$1.08

...Long
...2.17

...New
...1.08

...Chart
...72.7

...North
...65.7

...South
...65.7

¡CUIDADO CON EL... DENGUE HEMORRÁGICO!

¡ELIMINE EL
MOSQUITO
QUE LO
TRANSMITE!

ELIMINARLO ESTÁ EN SUS MANOS



MINISTERIO DE SALUD PÚBLICA

HEPATITIS

EPIDEMIA
SILENCIOSA



Conócala, hágase la prueba,
solicite información sobre
tratamiento.

- ¿Sufre de hepatitis o es medicación renal crónica en tratamiento de diálisis?
- ¿Recibió transfusiones de sangre antes de 1983 en Quito y 1987 en Guayaquil o en el extranjero antes de 1987?
- ¿Es trabajador de la salud y se ha pinchado accidentalmente o ha manipulado derivados de la sangre?
- ¿Se ha realizado tatuajes en condiciones inspeccionadas?
- ¿Se ha injectado con agujas compartidas?
- ¿Se ha perforado los oídos o se ha colocado "piercing" en cualquier parte del cuerpo?
- ¿Ha compartido cachibolas de alcohol o cepillos de dientes?
- ¿Ha tenido múltiples compañeros sexuales o ha padecido de Hepatitis B o SIDA?

Si usted está dentro de alguno de estos grupos de riesgo, consulte a su médico e insista en que le realicen un examen de laboratorio para Hepatitis por Virus C (HVC).
COMUNIQUESE PARA MAYOR INFORMACIÓN: 022505607 ext 144 / 158

Ministerio de Salud Pública
Dirección de Diagnóstico y Referencia Epidemiológica

Cruz Roja Ecuatoriana



EL PALUDISMO Es transmitido por el Mosquito ANOFELES



En la sangre de las personas
infectadas por parásitos de
este enfermedad.

Los mosquitos
se infectan
picando a las
personas.

Los mosquitos infectados
al picar a las personas hacen
transmitir el paludismo.

Las personas que viven en áreas y zonas donde hay mosquitos. Estas personas o
residentes en zonas de riesgo de PALUDISMO que viven en zonas de riesgo de 2 a 5 años y se
cuentan 2 a 5 años. Cada año de PALUDISMO produce en el cuerpo de las personas, por eso,
las personas, se vuelven débiles, se debilitan... y si no se curan a tiempo pueden
morir!

¿QUÉ HACER?

- A las primeras fiebres y escalofríos ir a la Clínica de Salud
Hepáticas o al Laboratorio de Diagnóstico de Malaria.

EXÁMENES

En los Servicios de Salud hacen un examen rápido, sencillo y seguro, para saber si las fiebres y
escalofríos son causados por el PALUDISMO.

TRATAMIENTO

Si los exámenes indican que tiene paludismo, los enfermos reciben tratamiento inmediato y
eficaz para la curación completa.

EXÁMENES, Y TRATAMIENTOS SON GRATUITOS.

PERO HAY DOS PROBLEMAS!

- Las personas con fiebres y escalofríos... no van a tiempo a recibir atención médica. Esto
debido a falta de agua y energía eléctrica en las zonas de los enfermos. Además, mientras los
PALUDISMO se va curando por completo... los enfermos se debilitan y se debilitan.
2. Los enfermos viven que no van a tiempo a recibir atención médica. Esto
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PALUDISMO se va curando por completo... los enfermos se debilitan y se debilitan.

ALGODON PUMA - TUBERCULOSIS

ITIAUAS "ALGODON - PUTANISHKA" UNKUY SHUK
ALI MIKUSHA TIAK RUNA AKHAY IKUSHA MANA MIRARINCHO
CHAIKA ANMI ALGODON PUMA PUNURAY
CHASNA TUNUY TUNA USHAN QULLAUNARA HUATAUNARA
SHINCHI RUNA AKPIKA CHAY UNKUY MANA
INAURASPAS LIKCHARINKACHU

SHU RUNA MANA ALI MIKUSHA SHINCHITA TARABAKPI
MANA ALI HUASITA CHARIKPI, SHUK SHAMI HUAKLICHIK
SAMPAYACHIK UNKUKUNATA CHARIKPI CHAY UNKUY
ZHAS MIRARIK O LIKCHARISHAKA ASHAGA
UNKUCHIN, HUAKLICHINMI PAIHUA SILLUKUNAHUA.

ALGODON PUMA NISHKA UNKUYA CHARIKPIKA SINTICHINMI:

- MANA ALI YACHIN SAMPAYACHIN
- TUTAUNA UMPICHIN
- ANSA CALENTURA SHAMUNTUTAUNA
- IRQUITUCUN
- UTUCHIN VERDE SAMIRIKURUK LUMA RASURA CACHAMUN
- CHAY UNKUY SHINCHITA TIGRASHAGA JAHUARA TUKUCHIN

¿MATA BANANNA SHUK UNKUSHA PUNAHUA?
SHUK RUNA ALGODON PUMA NISHKA UNKUYA CHARIK TUNU
RIKURINKAPI, PROMOTOR DE SALUD PAKMA O SUBCENTRO SALUDMA
RUNA USHAN MANA SHUK EXAMENKUNATA RURANKAPAK.



UNION

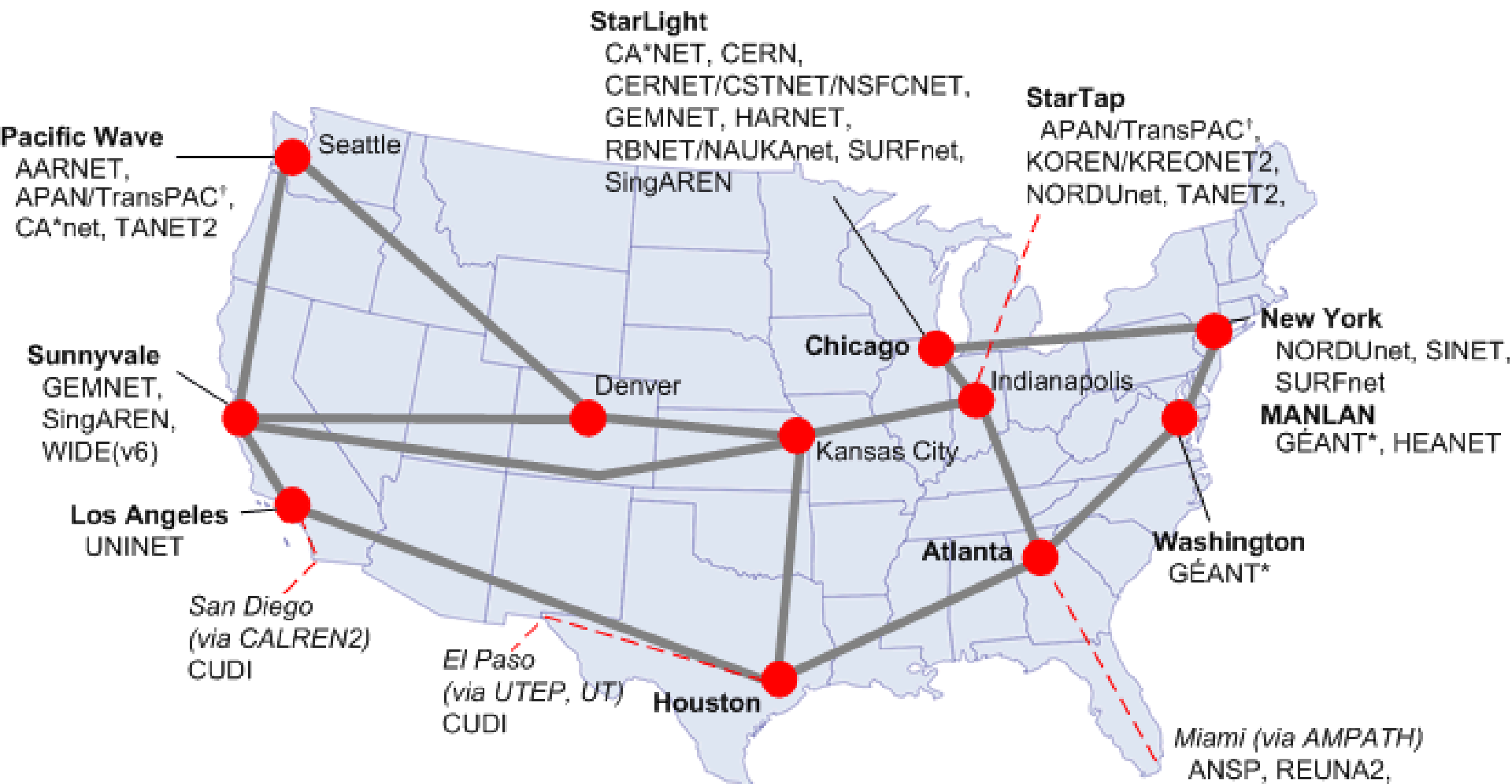
International
Union
Against TB

Distributed Medical Intelligence

- Knowledge Sharing Networks/Just in Time/On Demand
- Best Practices
- Evidence based



Abilene International Network Peers



* via GEANT: ARNES, ACONET, BELNET, CARNET, CERN, CESnet, CYNET, DFN, EENet, GARR, GRNET, HEANET, IUCC, JANET, LATNET, LITNET, NORDUNET, RENATER, RESTENA, SWITCH, HUNGARNET, GARR-B, POL-34, RCST, RedIRIS, SANET, SURFNET

* via APAN/TransPAC: WIDE/JGN, IMnet, CERNet/CSTnet/NSFCNET, KOREN/KREONET2, PREGINET, SingAREN, TANET2, ThaiSARN

Programa Nacional de Telemedicina Ecuatoriana





Programa Nacional de Telemedicina





San Cristóbal, Galápagos

1350 Km.



UTE



NUEVO ROCAFUERTE

850 Km.



Hand Held Devices

“mHealth”



BlackBerry



Treo/Palm



iPhone



La Lancha Medica en la Amazonia





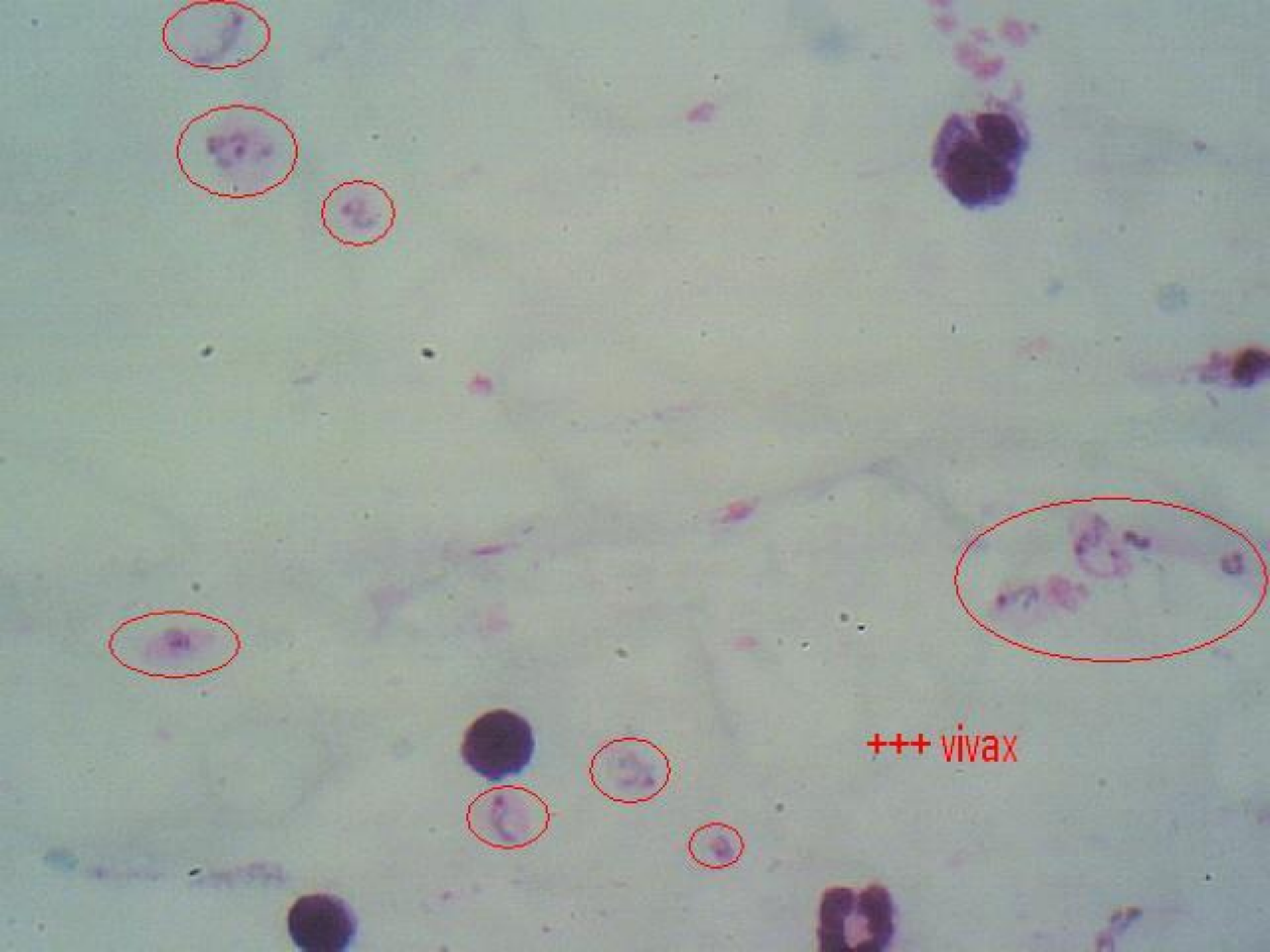


Other Critical Concepts

- **Preventive Medicine and Integrating Community Health Workers/Promotores de Salud**







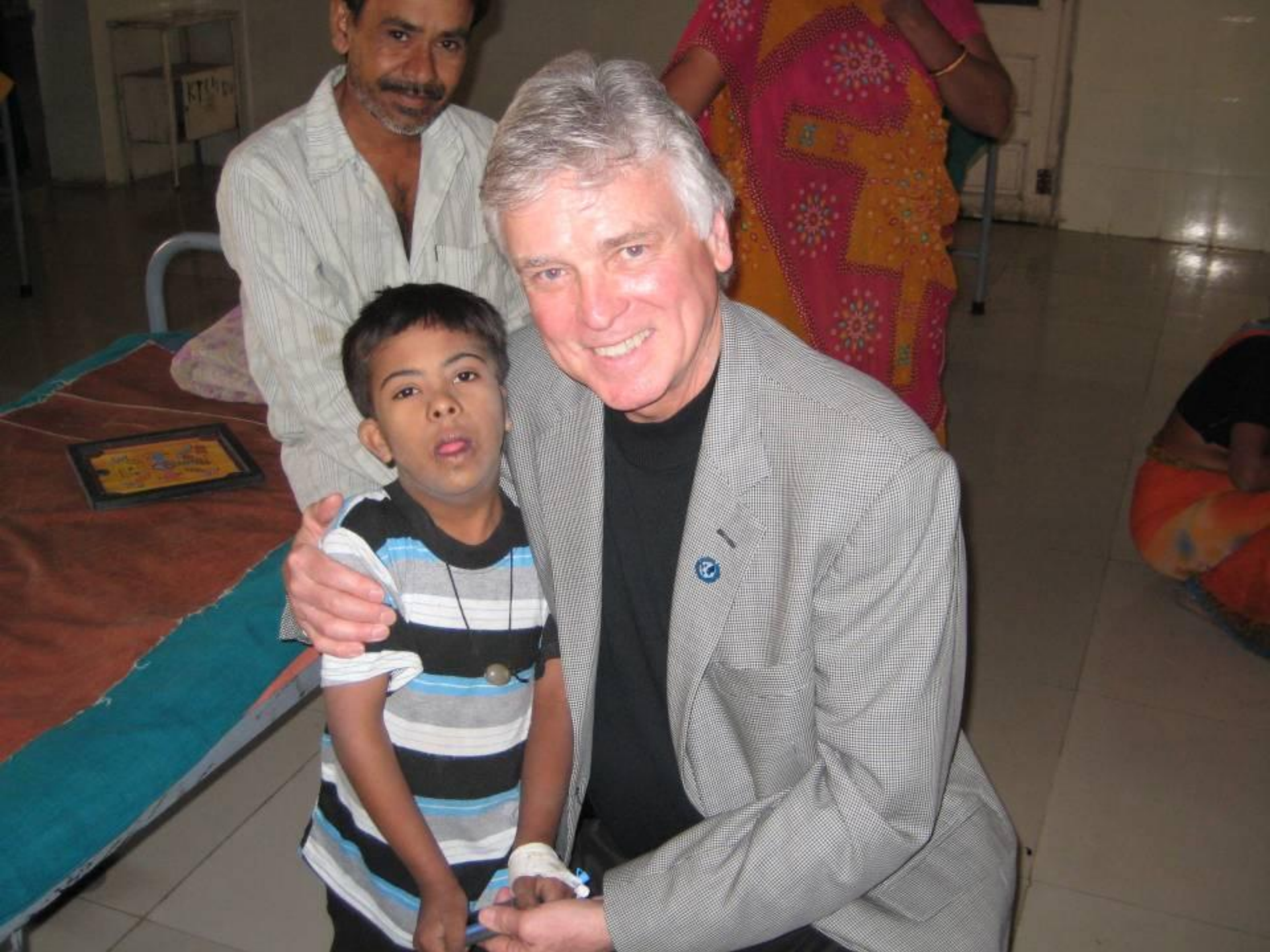
+++ vivax

Different cultures with unique health issues











Exchange of Students and Faculty







Next Steps

- Develop potential new telehealth services that meet needs as defined in each country that utilizes an expanding international network of networks.
- Emerging new information technologies, wireless systems and handheld devices can provide complimentary systems for global connected health and cultural exchange.
- These approaches will provide platforms for sharing knowledge and best practices that can be realistically customized to the needs of each country based upon existing resources and future potential improvements in their healthcare systems and ICT infrastructure.

Next Steps

- Additional efforts should focus upon provision of access to affordable educational and training materials, as well as electronic journals. As needed, multi-lingual materials and modes of communication should be provided.
- Lastly, recognition of traditional healing practices should be integrated that build upon unique cultural perspectives related to holistic health and wellness.

Traditional Healers



DIOS ES PARA TODOS
TRABAJA
NO ENVIDIES

S. BENDICE
TRABAJO



JAMBI HUASI



**INTER UNIVERSITY MEDICINAL
PLANT FOR NURTURE &
THERAPEUTICS (IMPLANT)
(2004 - 2007)**

**FUNDED BY: NATIONAL MEDICINAL
PLANT BOARD
MANAGED BY:**

**DEPARTMENT OF PHARMACEUTICAL SCIENCES
SAURASHTRA UNIVERSITY-RAJKOT**



ATA

- The American Telemedicine Association (ATA), <http://www.americantelemed.org> , has also developed a Web-based International Telemedicine Resource Center designed to facilitate links to several international programs, addressing telehealth initiatives in a host of countries.
- The ATA international resource center offers an expanding inventory of international telehealth programs, as well as provides a point of contact for promoting coordination and awareness of these projects, as well as a platform for improved relations between developed and developing countries, that is a forum for health diplomacy.

Conclusions

- ICT applications to healthcare called telehealth, eHealth, mHealth, or overall “connected health”, offer the opportunity to transform systems of care in profound ways that can improve the health and wellness of children and their families in the global community, at individual, community and population levels.
- These approaches can improve access to care, education, training, sharing knowledge, and health research throughout the world in culturally appropriate ways that address fundamental needs, as well as specific unique health needs of each country.

Conclusions

Ultimately telehealth can improve local capacity to manage health and wellness, improving the quality of life of all people through partnerships by

"thinking globally but acting locally."







Questions?



<http://hsc.unm.edu/som/telehealth>

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