



Opportunities for Telehealth: The Asian Perspective

Dr. Shariq Khoja; MD, MSc, PhD (e-health)

Assistant Professor - Aga Khan University, Karachi. Pakistan
Adjunct Assistant Professor – University of Calgary, AB. Canada
Project Manager – PAN Asian Evidence-based e-Health Adoption



Telehealth in Asia Roadmap



- Results of Systematic Review
- Issues with e-Health adoption
- Recommendations for eHealth adoption
- Road to PANACeA
- Collaborations for Evidence
- The Plan



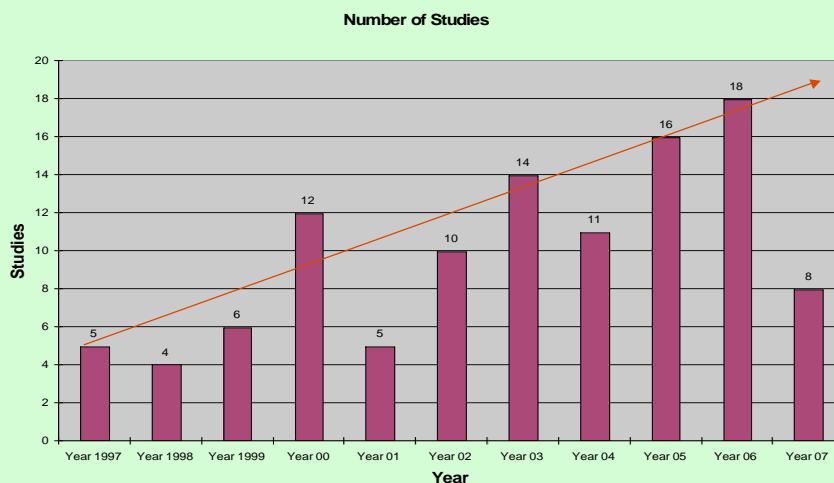
Telehealth in Asia Systematic Review



- Published literature on telehealth in Asia
- Cochrane Style Methodology
- Time period 1997-2007
- Electronic + Manual search
- 1504 abstract reviewed
- 205 full articles reviewed



Systematic Review Number of Studies

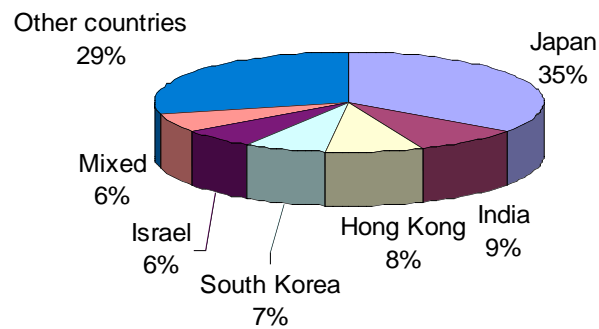




Systematic Review Countries Involved



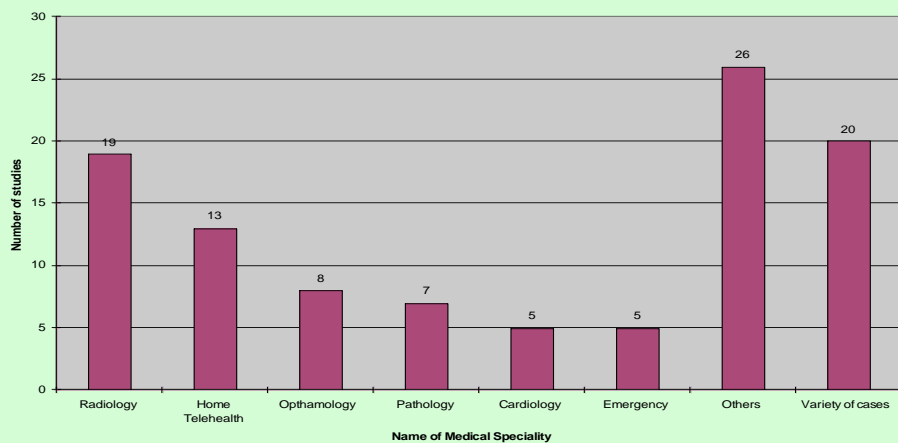
Countries involved in Telehealth Studies



Systematic Review Medical Specialties

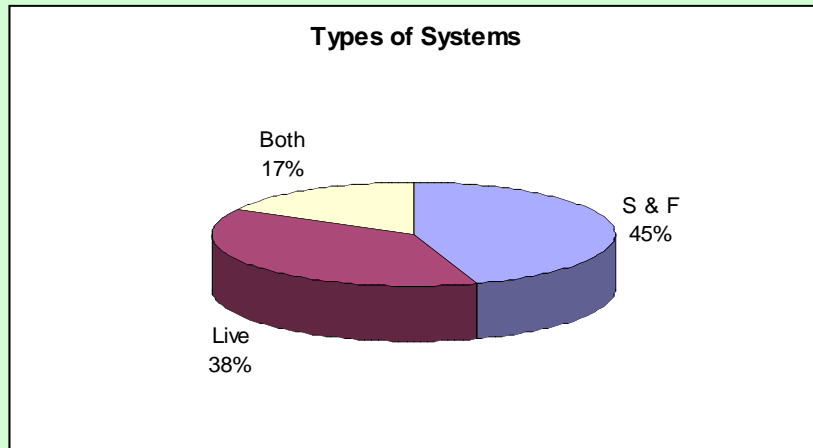


Medical speciality





Systematic Review Type of Systems



Systematic Review Descriptive Information



- **Study settings**
Most of the projects/ studies were held in urban areas (63%), rural areas (26%) and mixed (11%).
- **Technology**
Open source software (14%) followed by propriety software (11%), and in-house software (6%)
- **Connections**
ISDN (32%), POTS (15%), Satellite (14%), Broad Band (14%), Wireless (6%)



Systematic Review Methodology



- Study Design
Descriptive studies (75%), with independent control group (7%), economic /cost analysis (10%), qualitative (6%)
- Sample Size



Systematic Review Sample Size



Study Design	Subjects Range	Images/ cases Range	Consultations Range	Institutions Range
Randomized Control Trials	58 - 164 subjects	-	-	-
Case Controls	32 - 93 subjects	-	-	-
Qualitative	2 - 98 subjects	-	-	14 – 622 Institutions
Cross- sectionals	1- 511 subjects	20 to 1708 Images	12 – 1503 consultations	-
Prospective/ Retrospective studies	14 - 244 subjects	30 – 46 images	-	-



Systematic Review Methodology



- Study Design
Descriptive studies (75%), with independent control group (7%), economic /cost analysis (10%), qualitative (6%)
- Sample Size
- Quality of the included studies



Systematic Review Quality of Evidence



Level Of Evidence	Type of Study	Number of studies	Strength of Evidence
Level I	Meta Analyses OF RCTs	-	Good
Level II	Large Sample RCTs	4	
Level III	Small Sample RCTs	4	Good to Fair
Level IV	Prospective Studies	10	
Level V	Retrospective Studies	4	
Level VI	Cohort	-	
Level VII	Case Control	4	
Level VIII	Descriptive studies, NCCS	44	Poor
Level IX	Case reports	39	

Table describing Strength and Level of evidence based on the criteria of Jovell a



Systematic Review Outcomes of Studies



- Study Outcomes

Improving quality of care	43%,
Increasing access to service	20%,
Cost (economic analysis)	12%,
Management change	6%,
Policy Change	4%
Mixed outcomes	15%,



Systematic Review Discussion



- Rising trend in telehealth publications
- Poor quality of Evidence
- Developing countries of Asia still prefer store & forward technologies
- Programs need to be Needs-focused, rather than technology focused
- Other elements to focus are cost and infrastructure
- Impact on Policy is uncertain



Systematic Review Conclusion



- The overall finding of the review gives us an optimistic picture of different telehealth initiatives in Asian health care settings
- Studies that have emerged on telehealth applications are useful but lack good quality studies and in some cases the generalizability is limited to specific settings
- Store and forward modalities tend to be favored more by developing part of the Asian continent
- However considerable development is needed on making a broader telehealth (e-health) policy incorporated in countries e-government policies.



Telehealth in Asia IDRC-Assessment



- Rationale – ‘Value’ of IDRC’s e-Health investments
- Value of each project?
 - Yes – but very localized and limited in scope
 - Ranking on Low- High scale:
 - All projects were ranked as ‘low’, ‘low-medium’, or ‘medium’ for most of the 6 criteria
 - All received a ‘low’ ranking for ‘health benefits’



Telehealth in Asia IDRC-Assessment



- Results
 - Areas requiring attention:
 - Themes
 - Needs Assessment
 - Change Management
 - Evaluation and Outcomes
 - Sustainability
 - Dissemination
 - Knowledge Translation and Transfer
 - Issues
 - Application Software ('Open Source')
 - Application Focus (m-Health; GIS)
 - Local Capacity



Telehealth in Asia Recommendations



- Regional thematic network to provide focus, Stability, and Cohesive Direction.
- Support mechanisms needed for developing local skill levels, solutions, and evidence base.
- Good-quality evidence to show impact of e-Health in Asian environment
- Focus on themes, such as Needs-assessment, Change-management, Outcomes, Policy, Open-Source Standards, Dissemination and Knowledge transfer.

“PANACeA (PAN Asian Collaborative for evidence-based e-health Adoption and Application)”



PANACeA Background



- Countries with population growth and Epidemiological transition
- Issues related to access and quality of care and information
- ICT use in different sectors
- Increase in ICT growth in developing countries

Internet Growth in Asian Countries

	1995	1998	2000	2002	2006*
Bangladesh	0	0	0	0.1	0.2
Cambodia	0	0.02	0.05	0.1	0.3
India	0.03	0.14	0.5	0.7	3.6
Indonesia	0.03	0.25	1	1.8	8.1
Malaysia	0.2	7	16.59	24.4	40.2
Mongolia	0.008	0.13	1.14	1.6	10.4
Myanmar	0	0	0	0	0.1
Nepal	0	0.07	0.2	0.2	0.7
Pakistan	0	0.04	0.09	0.3	6.4
Philippines	0.03	0.21	2.5	2.5	9.1
Sri Lanka	0.006	0.3	0.65	0.8	1.4
Thailand	0.09	0.83	3.74	5.7	12.7



PANACeA

Study Questions



- Which [e-health applications and practices](#) have had the [most beneficial outcomes](#) on health and health systems?
- What are the best ways for ensuring that beneficial outcomes [reach](#) population without [access](#) to services?
- What is the potential of using [new pervasive technologies](#) such as mobile phones / PDAs?
- What types of technologies / applications are best suited to help prepare for, or mitigate the effects of, [disasters](#), [pandemics and emerging and re-emerging diseases](#)?



PANACeA

General Objective



To undertake collaborative research that promotes evidence-based adoption and application of technologically appropriate e-health solutions within the Pan Asian (South Asia, East Asia and Southeast Asian) contexts.



PANACeA

Specific Objective



- To support a set of multi-country research activities to address the four core research questions.
- To create a theoretical model for evaluating good practice in e-health programs in Asia.
- To build research capacity amongst Asian researchers to evaluate and adopt appropriate e-health technologies and practices and influence policy and decision-makers.
- To disseminate research findings widely in the regional and international research communities.

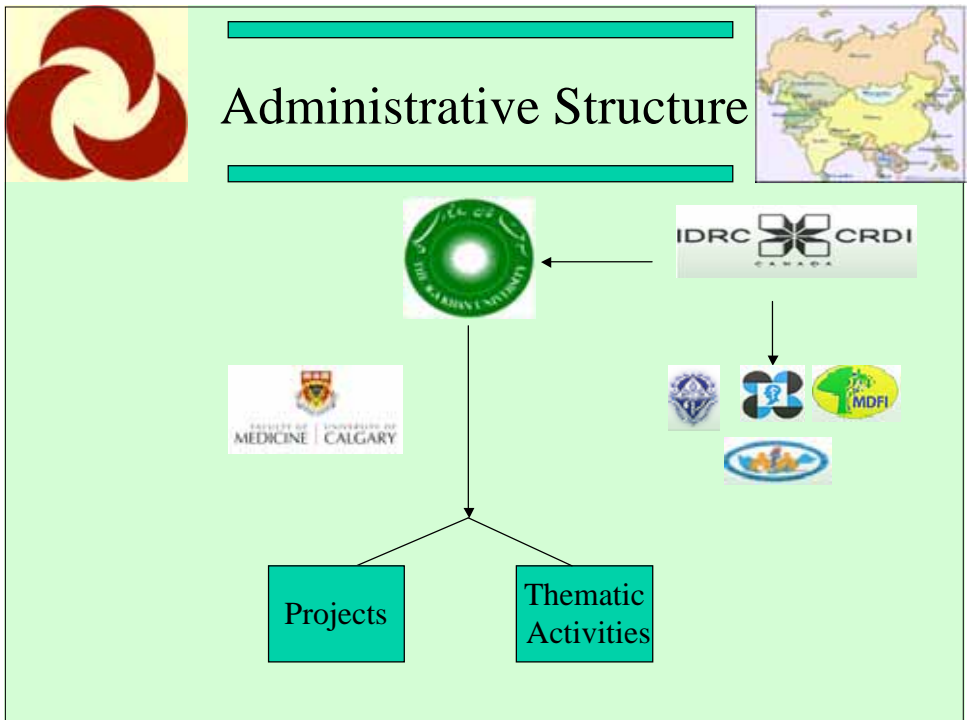


PANACeA

Scoping



- Selection of Countries based on Info Dev's e-Readiness assessment.
- Criteria for member institutions/individuals:
 - Health sector experience
 - e-Health awareness
 - Framework responsiveness
 - Past technology developed/applied
 - Project management skills
 - Communication skills
 - Willingness to collaborate inter-jurisdictionally

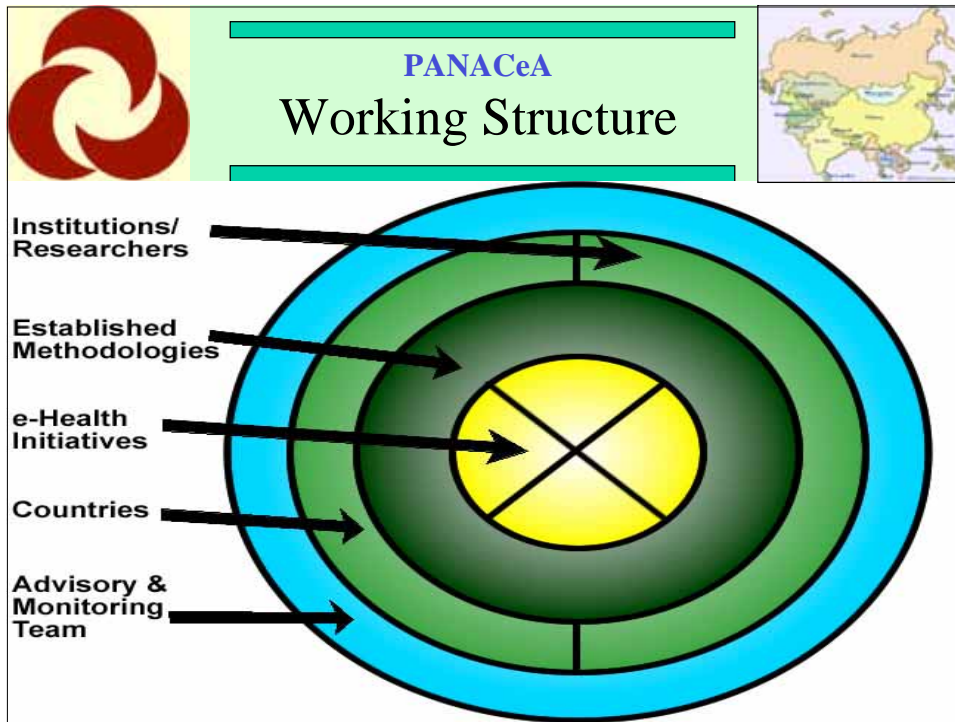


PANACeA Team

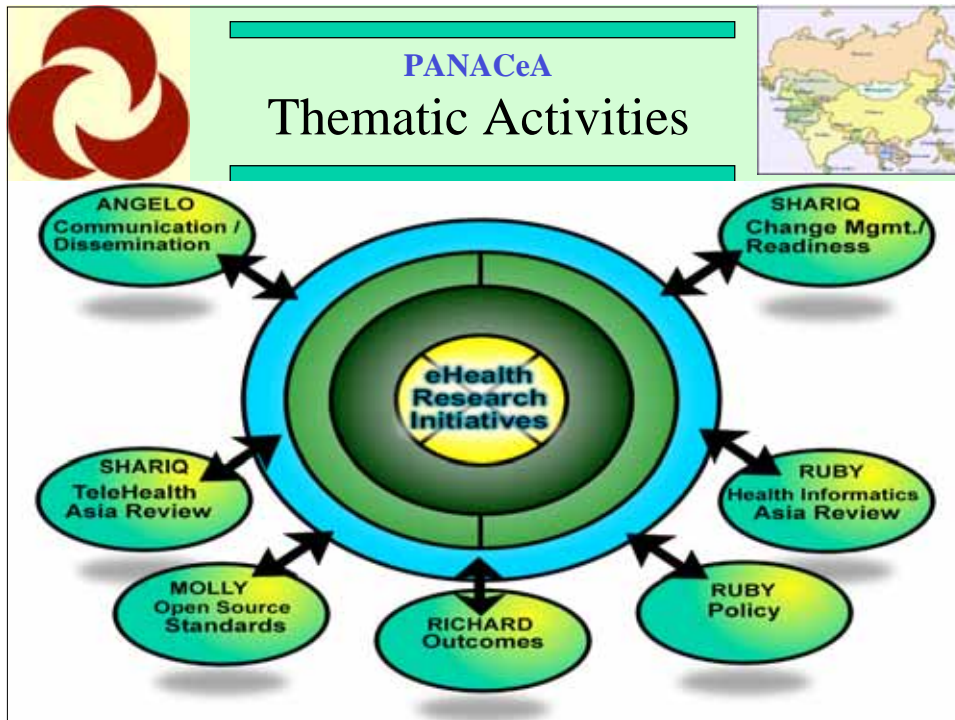
Regional eHealth Research Network WORKSHOP
 JANUARY 30 - FEBRUARY 3, 2007
 Holiday Inn Resort Clark Field, Philippines

Hosted by: Angeles University Foundation

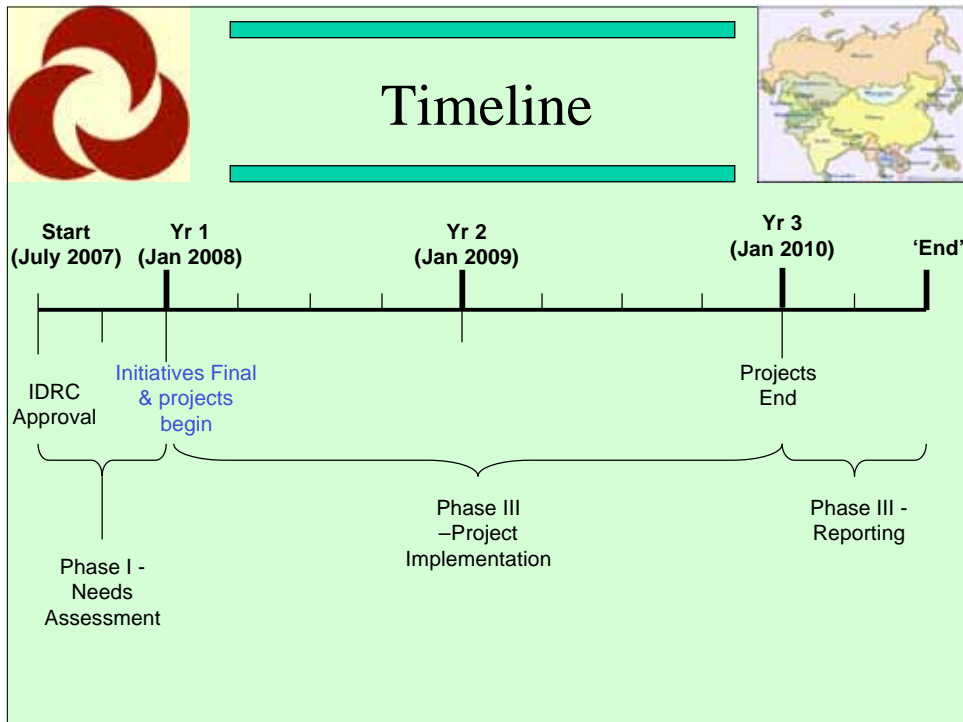
The banner features a group photo of the workshop participants. At the bottom, logos for the University of Calgary, The Sultan Qaboos University, MDPI, and IDRC/CRDI are displayed.



Projects	Leading Country	Other partners
Cost Benefit Analysis of available Hospital Information management system data mining and data warehousing	Pakistan	Thailand Philippines India
Portable System for Telemedicine and Health Information in Rural and Remote Areas	Malaysia	Sri Lanka Bangladesh Philippines
Remote Consultation to Improve Health Services for Rural Mothers	Mongolia	Philippines
Mainstreaming e-health initiatives in primary care: an evidence-based approach	India	Pakistan
Basic Intervention Research on e-Health for Persons with Disabilities	Bangladesh	Philippines Bangladesh
Online TB Diagnostic Committees for Clinically Suspect Sputum Negative Patients in the TB-DOTS Program	Philippines	Pakistan India Thailand
Disaster / Emergency Telemedicine System	Indonesia	Philippines Sri Lanka
Use of Mobile Phone in Bridging the Gap for Referral of Pregnant Women	Philippines	Pakistan Indonesia



-
- PANACeA**
Project Plan
- Phase I: Needs-assessment and finalization of research proposals (6 months)
 - Phase II: Implementation and supervision (24 months)
 - Phase III: Reporting, Dissemination and Evaluation (6 months)



PANACeA Evaluation

- Evaluation of the Network
 - South-South and North-South collaboration
 - Generating evidence to support appropriate e-health solutions
 - Capacity-building among Asian Researchers
 - Influence on policy and decision-makers
 - Dissemination of results to a broader regional and international audience
- Evaluation of the Contribution and Performance of the Projects



PANACeA

Marketing & Dissemination



- Wide variety of Stakeholders
- Methods for dissemination:
 - Promotional pamphlet
 - Workshops
 - Conference presentations
 - Website
 - Newspaper articles
 - Newsletters
 - Peer-reviewed Publications
 - Policy dialogues



PANACeA

Risks



- Communication
- Mentoring
- Monitoring
- Human Resources
- Financial auditing
- Technology changes



PANACeA Conclusion



- Opportunities to build partnerships
- Opportunities to Collaborate
- Testing technology in number of developing countries
- Creating Communities of Practice
- Impact on decision-making and policy-development



Thank You

Dr. Shariq Khoja

Assistant Professor

Department of CHS and Medical Director's office

Aga Khan University. PO Box 3500

Karachi. Pakistan

E-mail: shariq.khoja@aku.edu

