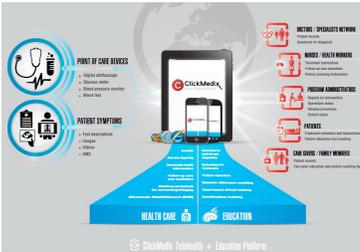




ClickMedix



“I was in a lab course at MIT in 2007 and we realized that a lot of people have mobile phones, especially people in developing countries. Even people without access to other basic services have mobile phones. So we thought we could use this as a conduit to delivering healthcare.”

–Ting Shih, Founder and CEO



Characteristics

<i>Country</i>	Bangladesh Canada China Ghana Guatemala India Kenya	Mexico Peru Philippines Taiwan Trinidad and Tobago Uganda USA
<i>Target Population</i>	General population Women Children Elderly Poor/Low-Income	
<i>Geographical Reach</i>	Multinational Urban Rural Suburban/peri-urban	
<i>Organization Type</i>	Private for-profit	
<i>Form of Care</i>	Mobile health Specialist care Infectious disease	Prevention Chronic care
<i>Innovation Type</i>	Leverage others' networks and assets Right-skill the workforce Use proven technologies disruptively Standardize operating procedures Align with patients' locations and behaviors Open new revenue streams across sectors	

Website www.clickmedix.com



ClickMedix

Description of Innovation

ClickMedix is a global mobile health (mHealth) and education social enterprise developed to address three critical healthcare challenges: lack of physical access to care, lack of funds to pay for services, and lack of medical personnel. ClickMedix aims to bring quality, affordable health services to underserved patients through mobile technologies and community-level entrepreneurship in collaboration with local and global partners.

ClickMedix created a patent-pending connected-health platform that can be accessed through mobile phones, tablets, or computers to allow for medical consultation requests from anywhere without the physical presence of a doctor. Instead, a community-based healthcare professional (nurse or health worker) acts as the hands and eyes of the remote doctor and transmits descriptions of symptoms using best-practice disease assessment protocols, diagnostics devices, images, and video recordings of the patient through the ClickMedix platform. Upon receipt of a medical consultation request with pre-packaged symptoms information about the patient, the doctor provides diagnosis and treatment instructions to the community health professional, who then administers appropriate treatment and continues to provide follow-up care to the patient. Over time, with every consultation request, the community health professional also attains practical knowledge about how to treat patients with

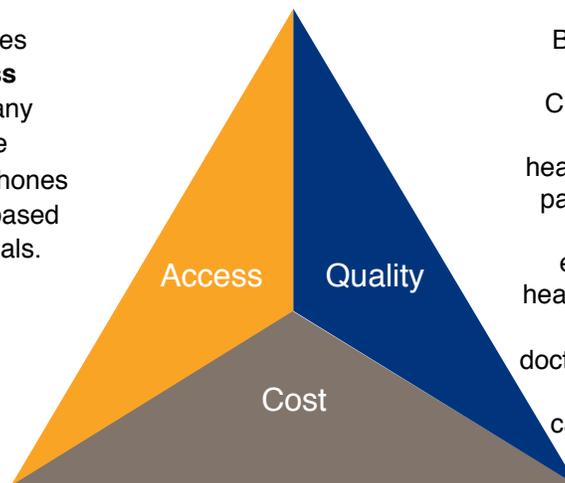
“We did a lot of work in Botswana. Because they really have so few doctors, the ‘aha’ moment came when I saw how the specialists were working. All they really needed to determine whether patients needed to be seen in person were answers to ten questions and some pictures. For over 80% of that patients this was all they needed to make a diagnosis and treatment plan to be administered by local health providers. I wondered, is this true across all specialities?”

Ting Shih, Founder and CEO

The Iron Triangle of Health Care

ClickMedix enables patients to **access** healthcare from any where at any time through mobile phones and community-based health professionals.

By providing remote consultations, ClickMedix improves the **quality** of healthcare provided to patients. At the same time, ClickMedix enables community health professionals to learn from remote doctors, enhancing the skills and quality of care available at the community.



ClickMedix eliminates **costs** associated with unnecessary travel and visits to doctors, and instead, enables remote healthcare consultations between patients and doctors.



“The feedback that I get the most is, “I can’t believe it is this easy to use!” We made it so that it can be used by anyone who is literate at a primary school level”

Ting Shih, Founder and CEO

commonly occurring conditions, thus empowering her to provide better care to her community.

By connecting patients to remote healthcare providers, through community health workers as a conduit to care, ClickMedix is able to reduce the cost and time for patients to receive high-quality care. At the same time, ClickMedix allows for knowledge transfer from remote doctors to local health professionals, hence building medical capacity and improving clinical skills at the community level.

ClickMedix offers mobile health technology solutions for physician specialists, health facilities, educators and researchers. ClickMedix makes their model work for their client, meeting the unique needs of partners and communities around the world. By increasing the productivity of higher-skilled healthcare workers and a right-skilled workforce, ClickMedix increases access to healthcare services and decreases the costs associated with quality care. ClickMedix enables critical healthcare data to be sent to the right health professionals with the right expertise to help the patient, in the shortest time.

ClickMedix was founded in 2010 by faculty and students from Massachusetts Institute of Technology (MIT) and Carnegie Mellon University after 3 years of pilot programs in more than 10 countries piloting with 43 clinics and hospitals, 3 governments and 3 research institutions and medical schools reaching a population of more than 600,000 people, while training hundreds of community health professionals and creating new jobs. The mHealth capabilities provided by ClickMedix increase productivity and profitability of health systems, improve health outcomes, and enhance skills and job opportunities for community health workers.

Providing Value to the Patient, Community, and Health System

Long waiting times to see a specialist, high costs associated with physician consultation and transportation, and a lack of physical access to quality care due to unequal distribution of healthcare workers prevents patients around the world from receiving the affordable and quality care they need. This problem is further compounded by an increasing number of patients seeking care, as insurance coverage increases in certain countries and an aging population emerges with new disease burden challenges.

ClickMedix minimizes the time needed to access medical specialists for targeted disease care to less than 3 days. Patients save on consultation and transportation fees and benefit from the early detection of diseases. Physicians



ClickMedix

are able to increase revenue from patient retention and telemedicine consultations. ClickMedix can increase the number of patients a doctor can serve by up to 4 times. Physicians or physician groups can benefit from attracting more patients by offering a specialty and decreasing administrative costs by up to 25%. Further, when utilizing nurses and community health workers, a single doctor can serve up to 10,000 rural patients with 10 nurses and 100 community health workers, bringing cost-effective care to those who can benefit from it the most.

Larger providers, such as healthcare groups and hospitals, increase their capacity to treat patients and capture revenue previously on backlog. By partnering with the Government of Botswana to provide telemedicine services ClickMedix technology is able to save the government \$500,000 USD annually on transportation costs alone. Improved collaboration among medical experts and referring primary physicians and rural nurses helps medical personnel provide the highest quality care to their patients. Real-time data capture using ClickMedix technology allows for expedited healthcare interventions, enhanced health education materials from a global perspective and reduced costs from data collection and analysis.

Health System and Policy Context

Health systems around the world are faced with the challenge to do more with less money. It is estimated that the new US Patient Protection and Affordable Care Act will increase the number of American insurance beneficiaries by 32 million. Many newly insured individuals will have pre-existing conditions and a growing aging population means that more individuals will seek treatment as the non-communicable disease burden increases. Recent cuts in the US Medicare and Medicaid budget only further compound the challenge.

US healthcare reform will enhance the work of ClickMedix as health organizations are financially incentivized to provide better, faster, and lower-cost care to patients. ClickMedix can help health organizations achieve health reform goals by improving the cost-effectiveness of their programs, and allow their existing resources of doctors to serve more patients remotely, while enhancing patient health outcomes through community-level efforts to help patients with treatment adherence and follow-up care. ClickMedix meets US Health Insurance Portability and Accountability Act, HIPAA, regulations to ensure the privacy and



ClickMedix

“The ClickMedix Model can be adapted for primary care, but we find it is easiest to start with a specialist. Primary care is a massive decision tree based on symptoms and the triage can be handled by a primary care doctor or nurse. We see a real gap with access to specialists. The narrowed focus makes this the easiest place to start.”

Ting Shih, Founder and CEO

security of patient health information. Additionally, it is in the process of developing a network of physicians from different states, since legally physicians must be licensed by the state where the patient resides.

Developing countries around the world are facing a healthcare worker shortage and unequal distribution of health workers. Disproportionate distribution of healthcare workers between rural and urban populations is common in many developing countries and costly private providers remain out of reach for many low-income urban populations.

Operating Model

ClickMedix provides services to physicians, health facilities and hospitals, educators and researchers. ClickMedix leverages value-based partnerships with their clients around the world in order to increase access, decrease cost and help increase the productivity of medical personnel. The ClickMedix model can also be used to assist education and research institutions using real-time communication and data-collection methods to improve learning initiatives and make informed decisions about research practices to expedite intervention planning.

Click-Specialist, a mobile tele-consultation service offered to physicians and specialists, is based on ClickMedix’s patent-pending mobile health and education (MHE) platform that enables secure, HIPAA-compliant and reliable transmission of patient information necessary for remote diagnosis and treatment. Patients with conditions requiring a specialist are able to see a general practitioner (GP) or nurse and receive needed treatment multiple months earlier than if they were to schedule an appointment with a specialist at the clinic. The GP or nurse sends the patients case via mobile phone to a remote specialist who reviews and consults on the case online. The GP or nurse then provides needed treatment, referral or follow-up in a timely manner.

Click-Health, a mobile tele-health service for geriatric, maternal, and primary care, is available for home visit care providers, primary care clinics, rural clinics, hospitals and tele-health centers. ClickMedix technology allows timely expert treatment for many common or chronic conditions. This technology increases the productivity of the physician by allowing them to see many more patients when partnering with lower-skilled healthcare workers who serves as eyes and hands of remote physicians to provide primary care to large populations.

Click-Training, a service for medical schools and training institutions, facilitates clinical rotation training, enabling virtual mentoring by medical attendings. Finally,



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“My customers are what keeps me constantly motivated. They are pioneers who want to defy the status quo. Many are doctors who have always known how to deliver better care, but are stuck with aged technology and don’t know what else can work. We can typically implement mobile-phone telemedicine in a week.”

Ting Shih, Founder and CEO, ClickMedix

Click-Data, a service for research organizations and pharmaceutical companies, is a ready-to-use mobile phone and web-based real time data collection system. Click-Data enables real time collection of field information needed for research and intervention planning.

ClickMedix leverages existing health care facilities, institutions and companies by developing mutually beneficial relationships with their partnering organizations. Through these existing healthcare entities, ClickMedix is able to increase access, decrease cost and relieve overburdened health systems. The ClickMedix model uses a right-skilled workforce in order to increase the productivity of higher-skilled healthcare workers, such as doctors, and serve more patients. Standardized health care delivery protocols allow for quick and accurate diagnosis and treatment to take place by nurses and community health workers, allowing physicians to treat only the most complicated cases.

Business Model

ClickMedix works closely with customers to determine viable fee structures to enable long-term sustainability of the new service. Health organizations with multiple clinics are charged either a life-time license between \$50K to \$100K or an annual license ranging from \$10K to \$30K. ClickMedix provides comprehensive training and support for enterprise users at a subscription fee of \$20 to \$50 per user per month and a patient user subscription fee of \$0 to \$5 per user per month. For private clinics, ClickMedix offers a slightly different structure and charges a per case transaction of \$1 to \$3 per case.

ClickMedix works closely with each of its customers and partners to determine how the cost fits with their current budget. In every solution, ClickMedix includes a business model for the customer organizations to ensure long-term financial sustainability of their programs so that not only do patients obtain better care, but the organization can become increasingly profitable, allowing them to provide continually improving services.

Payments are collected through credit cards, wire transfers, checks or cash. Most payments from enterprise customers are collected based on completion of milestones and/or a one-time payment for one year of services. Additional revenue sources also come from selling mHealth certification training for general physicians, public health practitioners, and other providers to learn specialty clinical diagnosis and treatment skills, as well as for community health workers to learn to provide telehealth services, such as tele-geriatric care, tele-maternal care, and tele-pediatric care.



“We taught nurse midwives to do cervical cancer screenings. After four months of having the nurses take images and send them to specialists for a diagnosis, the nurses got to be 100% accurate as the women’s health expert. We saw this as a tremendous opportunity not just for diagnosis but also for training.”

Ting Shih, Founder and CEO

Impact Metrics

Quality metrics

- Reduced time to diagnosis
- Reduced time to treatment
- Improved process for diagnosis and treatment
- Time saved from travels
- Time saved by doctors
- Percent of cases seen remotely
- Percent of cases treated remotely through advice of doctors and administered by community health providers

Cost and sustainability metrics

- Payment collected from end-patients
- Cost-savings month by month
- Total cost of end-to-end treatment per patient compared with pre-ClickMedix process
- ROI month-by-month
- Break-even point
- Revenue projections month-by-month
- Number of new jobs created
- Number of health workers with newly trained skills in using mobile and telehealth technologies

Access and utilization metrics

- Number of patients served
- Number of rural patients served
- Number of senior patients served
- Number of children served
- Number of pregnant mothers/post-partum mothers served
- Number of health providers/nurses/health workers using ClickMedix
- Diagnosis/treatment facilitated by each health provide user

User satisfaction metrics

- Percent of users who prefer ClickMedix-method of remote care compared to traditional clinic visits
- Percent of health providers who prefer ClickMedix method of remote care compared to traditional clinic visits
- Patient satisfaction level (1 to 5) for service provided

Achievement of positive health outcomes

- Number of patients treated via ClickMedix
- Number of intervention programs expedited since the use of ClickMedix



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- Number of early diagnosis cases
- Number of lives saved due to timely intervention

Goals for Scaling and Replication

1. Reduction in preventable mortality and morbidity rates
2. Increase in number of patients served worldwide
3. Increase in revenue and capacity to expand service offerings
4. Double number of customers yearly
5. Enter at least 3 new countries yearly

External Support Required for Scaling and Replication

1. Introduction to strategic partners: point-of-care device companies, pharmaceuticals, healthcare insurers, tele-triage call center services, etc.
2. Introduction to potential customers looking for rapid ROI on mHealth technologies to serve more patients: health programs looking to scale up mHealth interventions, hospitals, health departments, education institutions, home-care organizations.
3. Pilot partners
4. Doctors interested in learning about telemedicine best-practices
5. Networking with business/corporate leadership
6. Sharing challenges and best practices with similar innovators
7. Access to potential investors

Media Attention and Awards

Awards

Recipient-Cartier Women's Initiative Awards Laureate for North America (2012)
<http://http://www.cartierwomensinitiative.com/>

Finalist- Emerging Business Leader of the Year, Montgomery County Chamber of Commerce, Maryland (2012).

<http://montgomerycountychamber.com/newsroom/news-releases/mccc-december-5th-business-awards-dinner-honors-community-leaders>

First Place- MIT Soldier's Design Nanotechnology Competition (2010).
<http://web.mit.edu/isn/newsandevents/designcomp/>

Best Telemedicine Award- World Health Congress (2009).

Runner-Up-USAID Global Development Award (2009).

Winner-MIT 100K Business Plan Competition Development Track (2008).

<http://clickmedix.com/october-2009-%E2%80%93-getting-started-on-global-health/>



Press

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United Fashion for Peace (Dec 19, 2012). Ting Shih: "ClickMedix can save lives!"

<http://webzine.unitedfashionforpeace.com/ethical-planet/ting-shih-click-medix-can-save-lives/>

Business Wire (Dec 14, 2012). PHYAURA EHR Goes Mobile with ClickMedix

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FierceMobile Healthcare (Dec 11, 2012). mHealth Training Provides Job Hope to Unemployed Nurses.

<http://www.fiercemobilehealthcare.com/story/mhealth-training-provides-job-hope-unemployed-nurses/2012-12-11>

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ClickMedix provided the source data for this document and is responsible for the accuracy of the content.