

MOBILE REMOTE PATIENT MONITORING



INTRODUCTION

With the growing elderly population and the increase in diseases along with the rising treatment costs is driving the need for mobile based care delivery solutions. With the chronic diseases on the rise, the overall expenditure on the healthcare facilities is increasing thereby increasing, the pressure for a constant lookout for alternative methods to provide better healthcare and control the rising costs.

The solutions like mobile based remote patient care are intended to help in reducing the patient's visits to hospitals and the overall cost on the healthcare facilities as the treatment can be provided at home. It also enables the care providers to effectively extend their services to the patients who may need care at home because of various medical conditions.

Some of the main factors that are driving the Mobile based health care include:

- » The evolving market of smartphones and tablets with and the growing adoption.
- » The increasing awareness about chronic diseases and their management with better medical practices and cost effectiveness.
- » Availability of the advanced connectivity interfaces such as Bluetooth, Wi-Fi, 3G and 4G networks

CHALLENGES

- » The adherence to the stringent regulations of FDA and EU
- » Security concerns w.r.t. the sensitive patient data.
- » Providing a timely and cost effective patient care
- » Automation of the existing manual process of providing services
- » The monitoring services segment contributed to about 63% of the global mHealth market revenue in 2012 and will continue to be a major contributor going forward

MARKET TRENDS ON MHEALTH SOLUTIONS

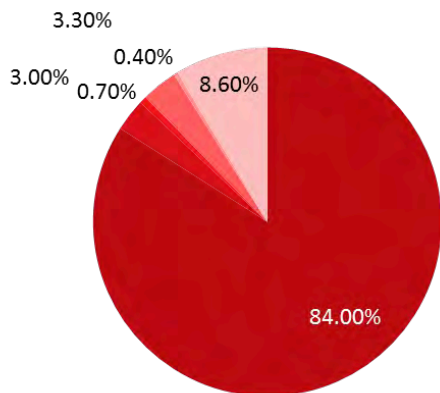
Connected Healthcare solutions enabled by mobile, social computing have been gaining lot of acceptance and popularity among consumers. Care providers, Payers and governments see a lot of promise in offering mobile enabled healthcare solutions to improve availability, accessibility and convenience of healthcare at a reduced cost. Experts believe that mobile enabled healthcare (mHealth) will usher a new transformative era in delivering technology enabled connected healthcare solutions. Mobile technology is sure to change the care delivery landscape for patients, providers, payers and governments.

A survey by Xerox has revealed that by 2016, 4.9 million patients worldwide will use remote health monitoring devices such as cardiac monitors, glucose monitors that communicate vitals data through a cloud enabled server or data hub.

Mobile Healthcare (mHealth) Adoption Trends

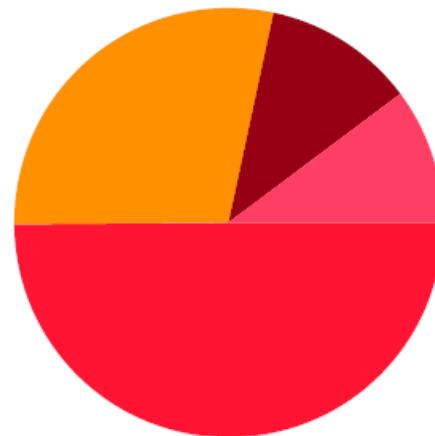
- » The market for mobile healthcare includes connected medical devices, healthcare applications, and related mobile technologies
- » The estimated global mobile healthcare market is at \$4.0 billion in 2013 and is expected to reach \$23.0 billion by 2018 at a CAGR of 26.7%
- » The dominance with connected devices is around 85% of the total revenue contribution. Cardiac monitoring and fitness tracking are the most widely used mobile-enabled applications of connected devices
- » The market for global mHealth applications is expected to reach USD 10.2 billion by 2018 from USD 1.3 billion in 2012 at a CAGR of 41.5% from 2012 to 2018

US mHealth Market Opportunity – by Service Categories



- Monitoring
- Emergency response
- Health Practitioner Support
- Health Surveillance Support
- Administration
- Wellness

- Mobile Operators, 11.5, 50%
- Device Vendors, 6.6, 29%
- Content/ Application Players, 2.6, 11%
- Healthcare Providers, 2.4, 10%



The forecast for the remote patient monitoring market for devices is predicted to reach \$556.9 million by 2016 with a 10% growth rate per year.

The main factors contributing to this growth

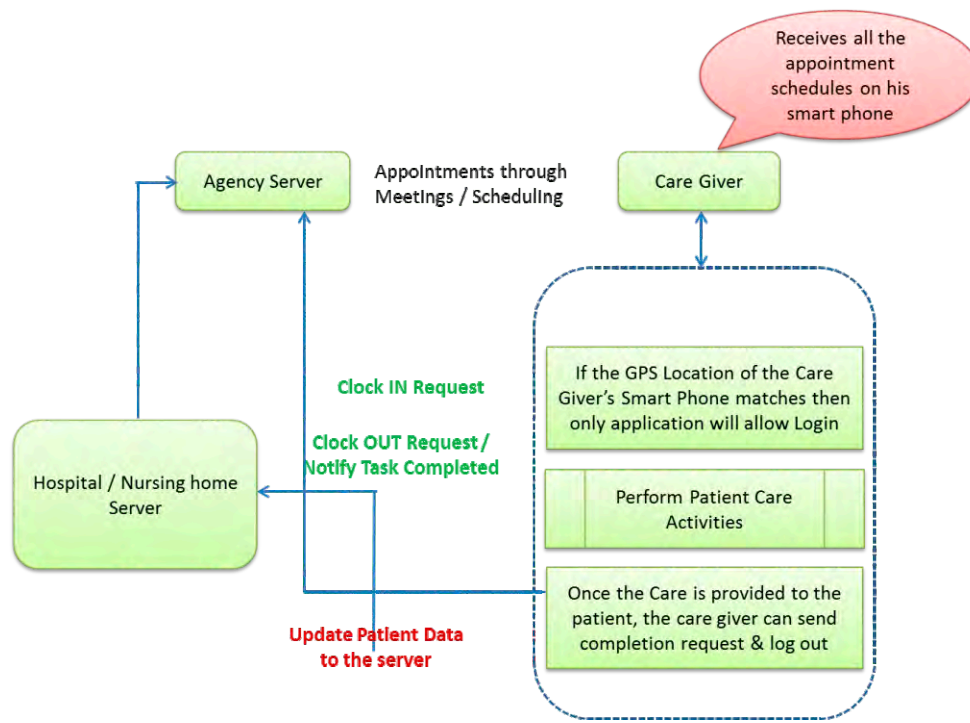
- The increasing patient count with chronic disorders like cardiovascular illnesses, diabetes and the rise in the elderly population. These patients prefer / need monitoring at home as it doesn't involve travelling and waiting in the queues at hospitals.
- The remote monitoring for cardiac patients is another segment of the industry that is expected to reach \$399.9 million by the year 2016 with 11% growth per year. This growth is due to the rapidly increasing numbers of patients with cardiovascular disorders around the world.



EXAMPLE SOLUTION: MOBILE REMOTE PATIENT CARE

A mobile based remote patient care solution can enable the care providers to automate their existing manual process of remote patient care by empowering their care givers with smartphone based solutions with the feature set as mentioned below:

- » Secured authentication and login mechanism
- » Tracking care givers location using GPS
- » Integrated Google maps for directions
- » Client/Server architecture for scheduling mechanism
- » Push notifications for care givers activities
- » Ability to configure the application for care givers activities and provide restrictions



Components

- » The Hospital / Nursing Home Server - Web Application
- » The Agency Server - Web Application
- » Remote Patient Care - Cross Platform Mobile Application for iOS, Android and Windows

Tools and Technologies

- » HTML5, CSS3 and JQuery
- » PhoneGap with Eclipse IDE
- » Jersey Web Framework for Restful Web Service and Apache Tomcat
- » MySQL database
- » Mobile Device's GPS
- » Push Notifications (Android, iPhone and Windows)
- » SSL Configuration for secured login

REFERENCES

- » <http://www.marketwatch.com/story/mobile-health-apps-solutions-market-worth-207-billion-by-2018-2013-12-11>
- » <http://www.researchmoz.us/remote-patient-monitoring-devices-market-global-industry-size-share-analysis-upcoming-technologies-current-trends-and-forecasts-2012-2018-report.html>

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www.altencalsoftlabs.com



business@altencalsoftlabs.com