How Mobile Tech can Influence Cost - Effective Health Care.
James S. Toreson *

"An Ounce of Prevention is Worth a Pound of Cure"
- Benjamin Franklin 1735

The Benefits of Mobile-Health Technology

Mobile tech's impact on medicine will be more profound than the pc's impact on mainframe computing. Some of the important features are listed below:

- Moving the Clinic to the Patient for Many Clinical Functions: Mental, Physical, Sociological
- Access to Large Population, Family Histories, and Lots of Data
- Enables "Community Level Healthcare" and Holistic Health through Local Support Systems
- Enables Automation to Transition from "Crisis-Care" to "Preventive-Care
- Lower Facility Expense
- Higher Physician Productivity
- Less Time and Cost to the Patient
- Higher Frequency of Care, Exams, and Patient Communications

Mobile Tech & Preventive Healthcare:

- Intelligent Data Acquisition Systems
- Genomic Data
- Current, Accurate, Electronic Health Records: Medical Data, Family Data, Patient Behavior, Lifestyle, Environment, etc.
- AI driven, Clinical Decision Support Systems
- Knowledge Base

The Knowledge Base

- Continuous Improvement & Review – Peer and AI
- Litigation History and Avoidance
- Comprehensive: Genomics, Drugs, Treatment, Symptoms, Behaviors, Family Data, Environment., etc.
- Technically Layered Search for the end-users:
- Consumer; Doctor; Researcher.

System Strategy:

- Translational Bioinformatics, fueled by Genomics, Patient Data, Family Histories, and Environmental Data
- Automation Intensive – Physician Empowering
- Artificial Intelligence Enabled
- Pervasive, Advanced, Quality Control
- Continuous Improvement at all Levels
- Cloud Based
- Ultra-Secure

Cost Control Elements:

- Low-Cost Systems, with "Zero Defect" Quality
- Minimize Skilled Personnel
- High-Quality Outcomes
- Reduce Time and Cost for Patient

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• Timely, Efficient, and Accurate Care
• Patient Involvement: Knowledge, Life Style, Behavior, & Family History
• Patient Experience and Satisfaction

SYSTEM DEVELOPMENT:
• Disease Assessment
• Set Priorities Based on "80-20 Rule": the 20% of Diseases that Cause 80% of Cost
• Disease Control that is Quick to Deploy
• Other Parameters e.g., Contagious diseases, Epidemics, etc.

HOLISTIC HEALTH
• Integration and Optimization of Psychological, Physical & Social health.

MENTAL HEALTH
• Brain (Mental) and Body Physiology are Connected
• "Distributed Treatment" through Patient Empowerment: Education, Communication, Meditation, Music, Social, etc.

GENOMICS - PREDICTIVE :
• Currently Constrained to Single Gene (Monogenic or "Mendelian") Disorders
• Complex Diseases Caused by Combinations of Genetic Information (Polygenic)
• Complexity of Genome Requires Massive Computing Power, Sophisticated Algorithms, and Artificial Intelligence (AI)

TRANSLATIONAL BIOINFORMATICS:
Translational bioinformatics = informatics methods that link biological entities (genes, proteins, small molecules) to clinical entities (diseases, symptoms, drugs)--or vice versa. (Professor Russ B. Altman, MD, PhD Stanford University)

AN EXAMPLE OF AI SOFTWARE:
• "eXtasy" - Software Breakthrough (Oct 2013)
• Advanced artificial intelligence Based
• Detection of Disease-Causing Mutations
• 20X Improvement in Accuracy
• Developed at KU Leuven in Belgium

CONCLUSION
Quantifiable Data from Mobile Tech is Critical for Advancing:
• Translational Bioinformatics
• Genomics
• Epidemiology
• Health Care to the Masses

Evaluation is Vital -
"If You Can't Measure It, You Can't Improve It"
- Lord Kelvin