Mobile and Digital Therapeutics to Drive Patient and Consumer Engagement

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**Healthcare Reform**
- Shift from volume-based to value-based care
- Balance between acute, chronic and preventive
- Increased recognition of balance between “consumerism” and “clinical”

**Mobile Revolution**
- Fastest global tech revolution in history
- No demographic or socio-economic barriers
- “Don’t leave home without it!”

**Global Chronic Disease Pandemic**
- Overwhelming % of GDPs in G7 and emergent economies
- Exponential growth in incidence vs. flat or linear growth in capacity to manage
- Requires frequent “teachable moments“ and self-management outside of the HCP office

**Life Sciences Industry**
- Massive compliance, adherence opportunity
- Patent cliffs and rapid proliferation of generics
- Investment conundrum

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DIABETES

29.1 million people have diabetes

That’s about 1 out of every 11 people

PREDIABETES

86 million people — more than 1 out of 3 adults

9 out of 10 do not know they have prediabetes

Source: www.diabetes.org American Diabetes Association, August 1 2014
$245 BILLION

Total medical costs and lost work and wages for people with diagnosed diabetes

Risk of death for adults with diabetes is 50% HIGHER than for adults without diabetes

Medical costs for people with diabetes are twice as high as for people without diabetes

People who have diabetes are at higher risk of serious health complications:

- Blindness
- Kidney Failure
- Heart Disease
- Stroke
- Loss of Toes, Feet, or Legs

Need to lose weight and get LDLs under control!

I lost my job

I’m going through a divorce.
Right Person

Right Data

Right Place

Right Time
Data → Information → Knowledge → Actions → Outcomes

S-M-A-R-T

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Medication Management
- Med validation
- Med and schedule setup
- Rx refills reminders
- Dosing reminders
- Titration support

Symptom Management
- Sweating
- Nausea
- Blurred vision
- Hunger
- Rash
- Tiredness

Lifestyle Management
- Diet
- Exercise
- Stress reduction
- Sleep quality
- Social support

Physiologic Management
- Blood glucose
- A1c
- BP
- Lipids
- Weight
- Labs, screenings, Vaccinations

Clinical & Behavioral Algorithms

Educational Content

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Getting a good night’s sleep every night is important in keeping BG’s controlled.

Hi Anand, getting a good night’s sleep every night is important in keeping BG’s controlled. You have not been getting a consistent 8 hours of sleep every night over the last 2 weeks. Lack of sleep can cause high BG’s overnight. If you continue to have trouble sleeping, ask your doctor if seeing a sleep specialist is right for you.
Feedback

Hey Anand, this after-lunch BG is just a little high at 275 mg/dL. Based on previous logs, you average about a 55 mg/dL drop of BG with exercise. How about a brisk walk to get your BG in target?

CURRENT WEATHER

- Sunny
- 68 degrees

SUGGESTED WALKING ROUTE

Enter note...
Data Capture Source

Patient

- Registration data (e.g., demographics, medication history, daily regimen, etc.)
- Psycho-social data (health literacy, cultural, social, etc.)

Non-Patient (e.g., 3rd party, system, etc.)

- Labs and screenings
- Evidence-based guidelines
- Medication regimen
- Metabolic targets and ranges
- Clinical rules
- Physician instructions

Low (~Static)

- Physiologic data
- Activity Data
- Symptom data
- Lifestyle data
- Medication data

High (~Dynamic)

- System-generated KPI’s, alerts, trends
- System and feature-level utilization data
- Absence of data

Data Capture Frequency
Discover
Using known data to draw insights
• Patterns
• Discriminant functions
• Behaviors

Inform
Presenting primary analyses of the data
• Engagement or usage data
• Clinical value data
• Population data

Adapt
Using learning techniques to provide new insights and choices for optimizing outcomes
• New product features
• New service features

Extrapolate
Using existing data to model patterns and predict future occurrence of events
• Probabilistic models
• Machine learning based models

IDEA!

Data Presence
“Have Data”
“Don’t Have Data”

Analysis Intent
“Don’t Know What I’m Looking For”
“Know What I’m Looking For”

“Don’t Know What I’m Looking For”
“Know What I’m Looking For”
USING INFORMATION THERAPY TO PUT PATIENTS FIRST

Dr Aniruddha Malpani, MD
Edited by: Rohan Pasricha
"Do you want the pill, the suppository, the patch, or the app?!!"