Psychographics + Technology:
Changing Patient Behaviors in Cardiovascular Health to Drive
Better Outcomes, Productivity and Cost Savings

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American Heart Association
American Stroke Association
Life is why
Agenda

• Introductions & Objective
• Economic Impact of Cardiovascular Disease
• Heart Failure and the Opportunity for Reducing Hospital Readmissions
• The Role of Psychographic Segmentation and Adaptive Technology
• Case Study: Significantly Reduced 30-Day CHF Readmissions
• Going Forward: Prevention of Disease Progression
• Q&A
Economic cost of cardiovascular disease

Total direct and indirect cost of cardiovascular disease is $316 B;
• Direct cost is $189 B

• Cardiovascular disease and stroke account for 14% of total healthcare expenditures;

• More than any other diagnostic group
<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Average Aggregate Annual Expenditure</th>
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<tbody>
<tr>
<td>Heart conditions</td>
<td>$100,996</td>
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<tr>
<td>Trauma</td>
<td>$92,137</td>
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<td>Cancer</td>
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<td>Mental disorders</td>
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<td>COPD, asthma</td>
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<td>Residual codes</td>
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<td>Pneumonia</td>
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<td>Other bone, musculoskeletal</td>
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<td>Other care and screening</td>
<td>$18,234</td>
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<tr>
<td>Stroke</td>
<td>$17,592</td>
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<tr>
<td>Cerebrovascular disease</td>
<td>$16,940</td>
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Source: National Medical Expenditures Panel, Survey of 2012
Projected cost of cardiovascular disease through 2030

By 2030

• 43.9% of US population will have some form of CVD
• Total cost is projected in increase from $318 B to $918 B
• 60.5% of that is attributed to hospital costs

Chart 27-5. Projected direct costs of total cardiovascular disease by type of cost (2010 dollars in billions). Unpublished data tabulated by the American Heart Association using methods described in Heidenreich et al.6
What is Heart Failure?

• Heart failure occurs when the heart muscle is weakened and cannot pump enough blood to meet the body's needs for blood and oxygen.

• Blood will back up into the lungs, causing shortness of breath, and the legs, resulting in swollen ankles.
A large, and growing population

- 6.5 million Americans live with heart failure
- 1 million hospital discharges per year
- Expected to grow 46% by 2020 to 8 million
Impact of heart failure

1 year mortality 29.6%
5 year mortality 54-61%
Estimated cost is $30 billion
• 68% of costs are direct medical
30 day readmission rate is 20-25%
The economics of preventing readmissions

Assumptions
• Margins for heart failure are thin
• Resource utilization (costs) are high
• Readmissions are preventable

Preventing a readmission
• Improves quality profile of healthcare system
• Frees up beds and other resources for higher margin patients
• Prevents operating loss on ‘hard to manage’ patients
The economics of preventing readmissions

• Some readmissions are necessary

• Earlier identification decompensated heart failure may result in a shorter length of stay and lower cost of treatment

• Engaging the patient post discharge can result in greater loyalty to healthcare system, resulting in incremental revenue from other healthcare needs (i.e., diagnostics, and procedures).
Heart failure readmission prevention strategy

• Goal: 20% reduction in heart failure readmission rates

• Public reporting of hospital quality, perception, readmission, and mortality

• Readmission penalties
How is 20% reduction in heart failure readmission rates strategy working?

• Get With The Guidelines

2006-2009 readmission rate 20%

2009-2012 readmission rate 19%

1 of 70 hospitals achieved a 20% reduction
How is 20% reduction in heart failure readmission rates strategy working?

- Hospital Compare

  2006-2009 readmission rate 24.7%

  2009-2012 readmission rate 23.1%

  2.6% of hospitals achieved a 20% reduction
American Heart Association strategy

**Science Translation**
Multi-disciplinary Professional Education Courses, Scientific Conferences & Events with reach to global audiences

**Science Discovery**
Strategically Focused Research Networks, My Research Legacy, Heart & Stroke Registry, Scientific Statements and Guidelines, Scientific Journals

**Diagnosis or Acute Event**
Patient Education at Point of Care (Patient TV), Quality & Systems Improvement programs

**At Home**

**Care Transitions**
AHA CarePlan Solutions

Derived from the evidence based guidelines
What is a CarePlan?

A Care Plan is a way to execute evidence based guidelines.

- Type & frequency of assessments such as electrocardiogram, cardiac enzymes, and blood pressure
- Decision making (and shared decision making) in regards to treatments & interventions such as open heart surgery vs. stent
- Medication management
- Patient & family education
- Coordination of care

Beyond taking their medications, many patients have questions like to know:

What should I eat?

What are my physical activity limitations?

What are common signs and symptoms?

How do I communicate information to my healthcare team?
Yet We Have The Typical Post-Acute Experience

- Too much information
- Too many choices
- Everything is hard
- I feel all alone
- Who can I trust?
Psychographic Segmentation + Adaptive Technology = Precision Engagement
Background
Is Education the Answer?
Psychographic Segmentation

- Attitudes
- Beliefs
- Values
- Lifestyles
- Personalities

why?
Achievers (24%)

"I take ownership of my health and I actively take steps to be healthy. I focus on achieving my goals and objectives. A disease is another challenge to be overcome."

Engagement Strategy: Achieve the goal

Balance Seekers (18%)

"I am open to many ideas and options, as long as they make sense for me. I need context to understand ideas and recommendations."

Engagement Strategy: Context, Candor and Choices to be made

Priority Jugglers (18%)

"I worry more about my family’s health than my own. I am constantly on the go, juggling many responsibilities, so getting sick is not an option."

Engagement Strategy: How the family/others will benefit; Commitment & duty

Direction Takers (13%)

"I look to my physician and other health care professionals for guidance and direction on what I need to do to address my disease."

Engagement Strategy: Doing what I ask of you

Willful Endurers (27%)

"There are more important things in my life to focus on than improving my health. I live in the “here and now”."

Engagement Strategy: Living for today
The Segments Are Among Every Population and Health Condition

Issues tied to 30 day readmission
PatientBond: Consumer Psychology + Adaptive Technology

Your Healthcare Consumer Audience

PatientBond segments your patients/consumers

PatientBond modifies patient behavior using a preference-based, outbound communications platform

Email  Text  Interactive Voice Response
Healthcare Behavior Change Foundation

Healthcare focuses here

Who is this patient

What are they doing?

Who?

Why?

What?

Why?

How?

Psychographics add focus here

Why are they doing what they do?

PatientBond executes here

How should we reach out to them?

• Healthcare historically knows “WHAT” patients are doing
• To change behavior you must know “WHY” patients are doing things
CHF 30 Day Readmissions Reduction Pilot

• Large, nonprofit hospital system

• Objectives - Use the PatientBond platform to:
  • Primary: Reduce Readmission Rates after CHF Discharge currently at 18.5%
  • Secondary: Improve patient experience & engagement while optimizing nurse time
Discharges by Segment Type

- Direction Taker: 37%
- Self Achiever: 31%
- Priority Juggler: 15%
- Willful Endurer: 14%
- Balance Seeker: 3%

Remember, all 5 segments are usually there...just the distribution changes
Communication Sequence Over 30 Days

1. Discharge instructions and Welcome to 30 day program
2. How to track recovery and symptoms
3. Follow up Appointment and access questions
4. Monitoring your weight
5. When to seek medical attention
6. Salt and Fluid in your diet
7. Appointment Follow Up
8. Your recovery zone
9. Making Changes in your Diet
10. Activity, Smoking, Drinking Tips
11. Medication Status & Access
12. Congratulations!
Communications Include Patient Response Prompts

From: <engage@patientbond.com>
Reply-To: <engage@patientbond.com>
Date: Saturday, September 24, 2016 at 8:19 AM
To: James Albertson <casey@c2bsolutions.com>
Subject: Your Recovery is Important (Day 5 Reminder: Why Monitor your weight)

Monitoring your weight

Weight gain can indicate that fluid is being retained in your lungs or elsewhere in your body. Remember to call us if you experience weight gain of 2 or more pounds in a day. Also be on the lookout for unusual coughing, swelling in the legs, ankles or abdomen, or other symptoms.

- You should weight yourself every morning on the same scale, wearing the same amount of clothing - remember that scales weigh differently
- Weigh yourself first thing in the morning after you’ve gone to the bathroom
- Record your weight on a calendar that you may bring with you to your doctor’s appointment
- Call the doctor if you gain 2 or more pounds in one day OR You gain 5 or more pounds in one week
  - In this instance, your doctor may also recommend a fluid limit to about 2 liters or 2 quarts/day

If you have any questions, you can call us at 855-284-2255.

Click here for ways to monitor your weight

IMPORTANT: FOR US TO GET A GOOD IDEA IS YOU HAVE ANY SERIOUS ISSUES, PLEASE CLICK HERE TO ANSWER FIVE MORE QUESTIONS

Sincerely,
Patients Answer the Five Questions

Please answer the following 5 questions:

1. Do you have shortness of breath even when you are at rest?
   - Yes
   - No

2. Do you have chest pain that doesn’t go away?
   - Yes
   - No

3. Do you have wheezing or chest tightness at rest?
   - Yes
   - No

4. Do you have weight gain (or loss) of more than 5 pounds in the last week?
   - Yes
   - No

5. Are you able to perform normal activities like showering, cooking or dressing?
   - Yes
   - No
Patient Response Dashboard

Follow Up Details

Patient Name: James Casey Albertson
Followed up by: Saint Saint
Follow up date and time: 01/04/2017 10:34 am

Follow up Summary
- I talked to the patient on the phone.
- Notes:
  Casey has gained 5 lbs, He was not taking his meds, and was drinking too much water. We called again and now he is fine. He had a couple of other questions that were easily handled
Patient Responses Across Engagement Timeline

- Total Responses
- Green Responses
- Red Responses
Responses By Segment
FTEs WILL MANAGE THE EXCEPTIONS!
Results

• 315 CHF discharges over 5 months

• 90% reduction in 30 days all-cause readmissions

• 62% patient response rate to 14 waves of psychographic communications

• 94% of patients (age 65+) liked the electronic communications
## What is the Opportunity?

<table>
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<tr>
<th></th>
<th>Discharges per Month</th>
<th>Current System Readmission Rate</th>
<th>Expected System Readmissions</th>
<th>ENTER Costs per Readmission</th>
<th>Expected Costs</th>
<th>ENTER Projected Reduction Percentage</th>
<th>Readmission Savings</th>
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<tbody>
<tr>
<td>CHF</td>
<td>30</td>
<td>24%</td>
<td>7</td>
<td>$9,000</td>
<td>$64,000</td>
<td>30%</td>
<td>$19,200</td>
</tr>
<tr>
<td>AMI</td>
<td>20</td>
<td>20%</td>
<td>4</td>
<td>$5,000</td>
<td>$20,000</td>
<td>30%</td>
<td>$6,000</td>
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<tr>
<td>CABG</td>
<td>10</td>
<td>23%</td>
<td>2</td>
<td>$10,000</td>
<td>$20,000</td>
<td>30%</td>
<td>$6,000</td>
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</table>

Mo. Savings $31,200
Going Forward: Reducing Disease Progression
Big Opportunities for Collaboration
Lessons learned?

• Heart failure patient have multiple co-morbidities

• Plan must be personalized, and relevant

• Cannot be one-size-fits-all
AHA Inside: Improving health outcomes with personalized, engaging tools

Using a research-based personalized experience helps patients create durable behavior change.

- **Connected** Heart Health was developed to improve the quality of life for patients by:
  - Connecting patients to the healthcare providers, caregivers, and other patients
  - Translating the AHA guidelines in easy to understand steps to promote self-care
  - Accessing patients education resources, developed by the AHA, designed to improve knowledge, health literacy, and behaviors, leading to improved outcomes
  - Sharing patient reported measures with healthcare providers

**AHA’s Life’s Simple 7™**
the seven most important predictors of heart health

- Get Active
- Eat Better
- Reduce Blood Sugar
- Stop Smoking
- Control Cholesterol
- Control Blood Pressure
- Manage Weight
Meeting People Where They Are

COMMUNITY

WEBSITES

SCHOOL

YMCA

GROCERY STORES

FAMILY & FRIENDS

RETAIL PHARMACY

SUPPORT NETWORK & PREFERENCES REGISTRY

DIGITAL SELF-MANAGEMENT TOOLS

BROCHURES & KITS

CORPORATE & COMMUNITY PROGRAMS

COMMUNITY CENTER

WORK

DAILY LIFE

PATIENT

CAREGIVER

HEALTHCARE

HOSPITAL

PHARMACY

PHYSICIAN

NURSING FACILITY

URGENT CARE CENTER

REHAB FACILITY

PATIENT TV
Why patient person centric?

- Person can **overcome odds**, *the disease cannot*

- **Person:** “do the things I like to do”  
  “I want to be happy”

- Nothing to do with illness and disease

- It is not about disease, *it is about life.*
Collaborating in Cardiovascular Disease Prevention

Health Motivation Assessment (HMA)

AHA’s Life’s Simple 7™
the seven most important predictors of heart health

1. Get Active
2. Eat Better
3. Reduce Blood Sugar
4. Stop Smoking
5. Control Cholesterol
6. Control Blood Pressure
7. Manage Weight

Sets the Priorities

Psychographic Segmentation

Personalizes Communications

12-52 week program with segment specific messaging & frequency
Health Motivation Platform

• Cardiac 30 Day Readmission Reduction programs
  • Digital discharge management solution aimed at reducing hospital readmissions for cardiovascular conditions

• Health Enhancement Program
  • Digital health engagement platform aimed at managing general population wellness and prevention of cardiovascular disease

• Condition Management Program
  • Digital Patient Engagement platform to manage specific forms of cardiovascular disease (e.g., CHF, AMI, Stroke, etc.) as a supplement to providers’ care
Current strategy

Science

Technology

Behaviors
Thank You!

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