Breakthroughs in Patient Engagement and Behavior Change:

Reducing Hospital Readmissions and Promoting Prevention of Cardiovascular Events

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Breakthroughs in Patient Engagement and Behavior
Change: Reducing Hospital Readmissions and
Promoting Prevention of Cardiovascular Events

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READMISSIONS A COMMON, COSTLY ISSUE FOR HEALTHCARE

As acute-care health systems acquire different provider types and Medicare offers cross-continuum payer models, healthcare is transforming into a more holistic network of care. Acute-care organizations are doing more to help their patients post-discharge. Providers are also financially incentivized by Medicare to keep discharges from returning as inpatients. But many health systems struggle with how to help patients take care of themselves once they leave the hospital. Often, resource-intensive methods are used to reach out to patients, many of whom have similar diagnoses but vary greatly in their attitudes about personal health, as well as their abilities to manage it.

Patients who suffer from cardiovascular events are at high-risk for winding up back in the hospital in less than a month. Heart failure, which is the leading cause of hospitalization among adults 65 years of age or older in the United States,[1] is also one of the most preventable readmission causes, says Patrick Dunn, Ph.D., manager of Connected Heart Health for the American Heart Association's (AHA) Center for Health Technology and Innovation. "It's an incredibly common diagnosis, but with a focused effort by the patient and clinician, many of the readmissions of patients with heart failure can be avoided," says Dunn. And avoiding another hospitalization is important: Patients with heart failure who are readmitted within 30 days have a worse prognosis at their six-month follow-up.[2]

The problem is also costly. Annually, more than 1 million patients are hospitalized with a primary diagnosis of heart failure, accounting for a total Medicare expenditure exceeding $17 billion.[3] The introduction of the Hospital Readmissions Reduction Program (HRRP) in 2012 as part of the Affordable Care Act started to financially penalize hospitals with the highest readmissions rates (for patients readmitted within 30 days of discharge) for certain conditions, including heart attack and congestive heart failure (CHF).

Readmission rates for Medicare beneficiaries suffering congestive heart failure averaged 22% from 2011 to 2014, down from 24.5% from 2005 to 2008, according to a Kaiser Family Foundation analysis of data from the Centers for Medicare & Medicaid Services (CMS). However, while improvements were made during the first three years of HRRP, concern is mounting that momentum has stalled. There's been no more than 0.1% reduction on average between 2013 to mid-2016, according to a 2016 *Journal of the American Medical Association* study.[4] Moreover, in 2017, penalties will hit a record high, as Medicare withholds an estimated $528 million in payments, affecting 2,597 hospitals.[5]

1   Rosamond W, Flegal K, Furie K, Go A, Greenlund K, Haase N, Hailpern SM, Ho M, Howard V, Kissela B, Kittner S, Lloyd-Jones D, McDermott M, Meigs J, Moy C, Nichol G, O'Donnell C, Roger V, Sorlie P, Steinberger J, Thom T, Wilson M, Hong Y. Heart disease and stroke statistics−2008 update: a report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Circulation. 2008;117:e25–e146.
2   Tung Y-C, Chou S-H, Liu K-L, et al. Worse Prognosis in Heart Failure Patients with 30-Day Readmission . Acta Cardiologica Sinica. 2016;32(6):698-707.
3   Rosamond W, Flegal K, Furie K, Go A, Greenlund K, Haase N, Hailpern SM, Ho M, Howard V, Kissela B, Kittner S, Lloyd-Jones D, McDermott M, Meigs J, Moy C, Nichol G, O'Donnell C, Roger V, Sorlie P, Steinberger J, Thom T, Wilson M, Hong Y. Heart disease and stroke statistics−2008 update: a report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Circulation. 2008;117:e25–e146.
4   http://jamanetwork.com/journals/jama/fullarticle/2594718
5   http://khn.org/news/more-than-half-of-hospitals-to-be-penalized-for-excess-readmissions/

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Josh D. Luke, PhD, FACHE, author of *Readmission Prevention: Solutions Across the Provider Continuum,* founder of the National Readmission Prevention Collaborative, currently teaches the course he developed on readmission prevention at USC Price School of Public Policy. As a hospital CEO for 10 years, Luke has given the challenge of readmissions quite some thought.

"Readmissions are expensive for the Medicare system. One challenge is the *operational* reason that readmissions is a problem, which is that readmissions are contrary to the revenue model that hospitals have been managed by for 30 years. Hospitals are compensated for 'putting a head in the bed,' so to have a penalty that penalizes them for putting the wrong head in the bed all throws a little kink in their armor," says Luke.

"There's never been any operational protocols of accountability or admitting patients based on criteria," he adds. "The only way to save the Medicare system is to transition to a model completely contrary to the one we have now, the fee-for-service model of yesterday, transitioning to a value-based model where the goal is to keep the patient healthy and in the home."

The struggle with keeping patients from being readmitted stems in large part from an often-overlooked fact: patients are partners in care. Unless patients follow a treatment plan and communicate when there's a problem, they are much more likely to be readmitted. Good population health, reimbursement rates, and publicly reported quality outcomes all rely on successful patient engagement.

When health systems successfully engage patients, more communication yields better outcomes as warning signs are caught early, education is provided, confusion is mitigated, and compliance is achieved.

INTRODUCING CONSUMER INDUSTRY TECHNIQUES TO HEALTHCARE

Everyone uses healthcare, but not everyone uses it in the same way.

In the non-healthcare consumer world, marketers target the consumer segment most likely to buy their product, and let the rest of the market draft behind in a halo effect.

"In healthcare, that's not an option. You need to engage with everyone," says Casey Albertson, president and chief operating officer of PatientBond, a cloud-based targeted patient engagement platform.

Both Albertson and Dunn believe there is potential to engage all patients using better communication strategies in which patients are communicated with differently depending on their personality and preference. This method, called psychographic segmentation, is a known method for marketers in the consumer and retail industries. It identifies groups of people according to their motivations, priorities and communication preferences. This type of research can help determine why an individual consumer might choose one option over the other. Used successfully in the retail and consumer product industries for decades, psychographics is beginning to be applied to healthcare, helping to enhance patient engagement and improving both medical and business outcomes.

Psychographic segmentation doesn't replace simple demographic or behavioral information, but instead enhances it by focusing on what providers truly need to know: what will get my patients to engage, to communicate, and to comply with treatment. PatientBond, a platform for automating patient engagement, uses a psychographic segmentation model for healthcare to customize engagement

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Platform for Patient Behavior Change
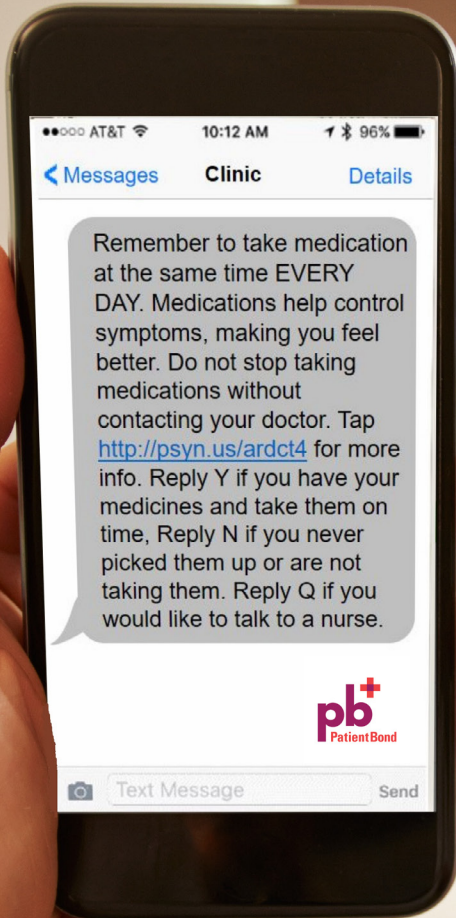
PatientBond personalizes population engagement, leveraging healthcare consumer insights proven to achieve clinical and business outcomes.

PatientBond's Cloud-based platform enables you to engage your patient population with personalized communications for both digital and in-person interactions. PatientBond uses a proprietary psychographic segmentation model developed by healthcare consumer experts from Procter & Gamble to motivate behavior change. Higher patient participation and response rates have yielded breakthrough results:

- **Up to 90% reduction in 30-day hospital readmissions**

- **22% reduction in missed appointments among Medicaid, Hispanic and rural populations**

- **2X improvement versus standard call center follow-up in conversion of ER discharges to network PCPs**

- **Up to 4X increase in patient payment collections**

- **50-80% patient response rate to communications (emails, text messages, Interactive Voice Response)**

PatientBond allows a healthcare provider to efficiently extend care beyond the walls of the practice, engaging patients the way they *want* to be engaged.

For more information, please visit www.patientbond.com or contact us at (708) 617-8130/info@patientbond.com

Remember to take medication at the same time EVERY DAY. Medications help control symptoms, making you feel better. Do not stop taking medications without contacting your doctor. Tap http://psyn.us/ardct4 for more info. Reply Y if you have your medicines and take them on time, Reply N if you never picked them up or are not taking them. Reply Q if you would like to talk to a nurse.

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according to patients' motivations and communication preferences. This psychographic model was developed by healthcare consumer experts from Procter & Gamble, a leading company in consumer understanding and behavior change. Using a short, 12-question survey consisting of abstract questions that the patient answers, the model identifies five different types of healthcare consumers:

- **Self Achievers,** the most proactive when it comes to their wellness. They stay on top of health issues with regular medical check-ups and screenings. Motivated by goals and achievement, they will tackle a challenge if given progress measures.
- **Balance Seekers** are generally proactive, but are open to many ideas, sources of information, and treatment options when it comes to their health. Choice is a priority to this group, and the ultimate decision of treatment is decided by themselves after weighing all their options.
- **Priority Jugglers** are busy; they are proactive in their families' health, but may be reactive when it comes to taking care of themselves.
- **Direction Takers** look to healthcare professionals for direction and guidance. They trust credentialed experts to make the right decision for them, but may have trouble complying with treatment if they don't find an easy way to incorporate it into their daily routine.
- **Willful Endurers** struggle with changing habits, and don't necessarily prioritize their health. They are self-reliant and only go to the doctor when they must.

Health systems tend to segment patients by diagnosis, or maybe demographics. But communicating differently with each of these profiles offers the best chance of engagement, says Brent Walker, senior vice president of marketing and analytics at PatientBond. "A one-size-fits-all approach is limited in its effectiveness. When you think about it, if you have two children and you're trying to get them to do their homework or chores, the way you motivate one of the children to get it done doesn't always work with the other child," says Walker.

In fact, Willful Endurers—the segment that lives in the "here and now" and is generally disengaged with health and wellness until they absolutely must address a health issue—make up 27% of the general population. However, among issues related to hospital readmissions, Willful Endurers are strongly over-represented. Willful Endurers are unique in their priorities and motivations and do not respond as well to typical healthcare education and communications. If a hospital wants to make significant improvements in its readmission rates, it needs to recognize the healthcare personalities of its patients and engage them accordingly.[6]

6   https://insights.c2bsolutions.com/patientbond/top-5-causes-of-hospital-readmissions-and-how-to-prevent-them

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ADAPTIVE TECHNOLOGY

In conjunction with psychographic segmentation, PatientBond incorporates adaptive technology into its model, meaning that its workflows are adjusted to patient preferences to enhance the likelihood of response. Messaging content, medium, and frequency are initially based on psychographic insights but evolve with real-world experience and learnings. This provides the option to not only customize what is communicated, but also how and when it's communicated. Patients differ on how they like to be engaged—whether interactive voice response, text, email, or connecting to patient portals. Response prompts included in communications gauge patient understanding of shared content or get them to answer short survey questions about their experience and recovery.

The technology includes an easy-to- follow dashboard that tracks patient responses, allowing the clinical staff to focus their attention on those patients who are flagged as potential readmission risks. These risks are based on patient responses to prompts asking them if they are having any trouble with their treatment. For example, digitally engaging a CHF patient on the fifth day post-discharge to check his or her weight allows the healthcare provider to intercept those who are retaining fluids, preventing a possible readmission. Patients and providers have the right information the moment they need it, allowing the clinical staff to care for the entire patient population, but manage the exceptions to recovery.

Patient responses from the questions/prompts embedded in the communications were placed into a dashboard allowing call center personnel to focus on RED lights (patient-indicated issues), and for those who did not answer. Please note the names used in this demo dashboard below are executives from the company that provided the service, and were NOT patients of the hospital.

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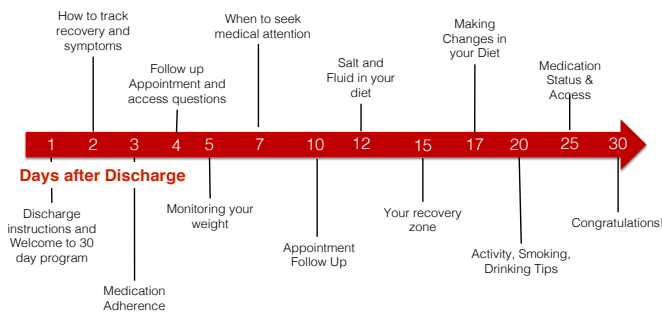
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PSYCHOGRAPHIC SEGMENTATION AND ADAPTIVE TECHNOLOGY LOWER READMISSION RATE, HELPS EFFICIENCY

The method of combining psychographic segmentation and adaptive technology works when applied to healthcare. At a large hospital system, digital communications using psychographic segmentation were used for five months in a pilot program to reduce 30-day hospital readmissions among its CHF patients. At discharge, patients answered the 12-question psychographic segment classifier survey and were educated by clinical staff on key points to a successful recovery. Over the course of 30 days, patients received 14 different communications delivered via email, text messages, and interactive voice response, using the hospital system's existing patient education content customized with psychographic messaging. The communications included patient response prompts, such as short surveys to gauge patient recovery.
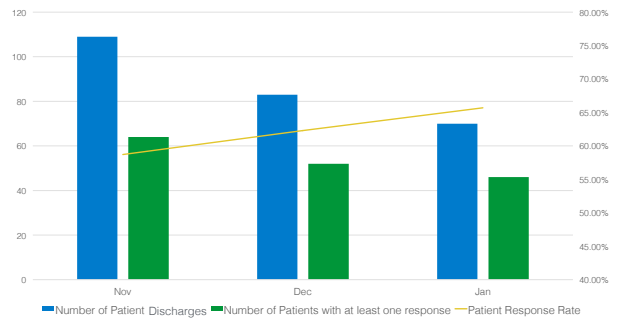
After 315 CHF discharges, the health system saw a reduction of 30-day readmissions from 18.5% to below 2%, representing greater than 90% reduction.

The method also triggered a 62% patient response rate to the 14 different communications. After the pilot, the hospital system surveyed participating
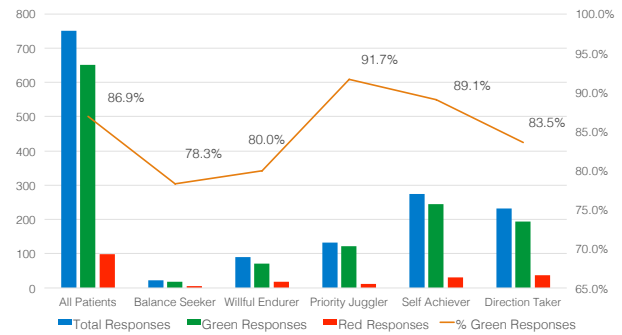
Patient Engagement Rate

Legend: ■ Number of Patient Discharges ■ Number of Patients with at least one response — Patient Response Rate

Response Status by Segment

86.9%   78.3%   80.0%   91.7%   89.1%   83.5%

Categories: All Patients, Balance Seeker, Willful Endurer, Priority Juggler, Self Achiever, Direction Taker

Legend: ■ Total Responses ■ Green Responses ■ Red Responses — % Green Responses

Discharge by Segment Type (through Jan. 2017)

Balance Seeker 3%
Willful Endurer 14%
Priority Juggler 15%
Self Achiever 31%
Direction Taker 37%
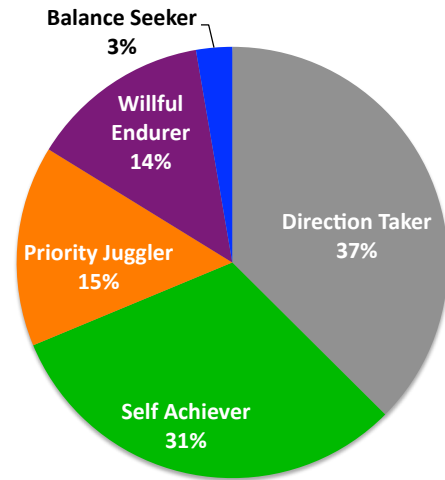
The hospital Executive staff had access to metrics on the CHF readmission program in real-time. Here are just three of the reports that were available (Patient response rate, Patient response rate by psychographic segment, and discharge by psychographic segment distribution). The distribution of psychographic segments across discharges correlated with nationally representative market research conducted before this project.

Sequence of Patient Communications After Discharge

Days after Discharge: 1 2 3 4 5 7 10 12 15 17 20 25 30

How to track recovery and symptoms
When to seek medical attention
Making Changes in your Diet
Follow up Appointment and access questions
Salt and Fluid in your diet
Medication Status & Access

Discharge instructions and Welcome to 30 day program
Medication Adherence
Monitoring your weight
Appointment Follow Up
Your recovery zone
Activity, Smoking, Drinking Tips
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CHF patients, most of whom were 65 years or older. Ninety-four percent of respondents (n=53) agreed that "Receiving texts, emails and calls about behaviors that help manage my congestive heart failure helped remind me of what I needed to do to take care of myself."

Other health systems are seeing similar results with non-cardiac readmissions issues, too. Massachusetts General Hospital saw an 87.5% patient response rate to digital communications and readmissions were reduced to 1.45% using psychographic segmentation and adaptive technology following lumbar spinal fusion surgery. These results were presented at the 10th Annual Meeting of the Lumbar Spine Research Society and published as an abstract in the *Journal of Neurosurgery*.[7] In addition, the hospital system saw a 75% reduction in staff hours dedicated to patient follow up.

THE NEXT STEP: PREVENTING CARDIOVASCULAR EVENTS THAT LEAD TO ADMISSIONS

Understanding what psychographic segmentation can accomplish in healthcare is crucial to the next step in population health. There are well-researched, evidence-based guidelines for heart patients established by the American Heart Association. But these guidelines generally take a one-size-fits-all approach and are often technical in nature. Consequently, many patients are less likely to follow these care plans at home. "Even the best evidence-based care plans don't matter if patients don't follow them, and a large piece of whether they do follow them is whether the information is easily digested and understood," says Dunn.

With the more than 80% engagement rates from pilot projects using psychographics and adaptive

7   http://thejns.org/doi/abs/10.3171/2017.4.FOC-LSRSabstracts Paper 34

CASE STUDY

St. Thomas Health in Nashville, TN, recently applied psychographic segmentation and automated communication methods to patient care, focusing on heart failure patients, and found the results encouraging. St. Thomas Health is part of Ascension, the largest not-for-profit healthcare system in the country.

"The psychographic piece, though simple to administer, seems like a very powerful tool that provided us the information we need to connect and communicate with those patients through a new and maybe deeper way," says Dr. Greg James, chief clinical officer at St. Thomas Health.

The nurses working with the patients at St. Thomas felt the segmentation was accurate and gave them insight on how to educate the patient best, says Dr. Theresa Herman, chief quality officer at St. Thomas Health. She adds that psychographic segmentation was accurate and cut across the usual socioeconomic, demographic, and geographic boundaries.

"Using automation in combination with psychographic segmentation, we were able to provide education and intermittent communication and patients would respond back to us at a phenomenal response rate," says Dr. Herman. "[Patients] were truly engaged…and because we were able to intervene early, we were able to keep people out of the hospital, giving them a better quality of life as they deal with a chronic disease."

"The technology is being used in such a way that rather than being impersonal, it's fostering a better patient-provider relationship," she adds.

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technology, Dunn sees a breakthrough in not just lowering readmission rates, but in population health management. "It is a game-changer. This an opportunity to really make a difference. The AHA put a lot of effort to aligning the cardiovascular science with this more behavioral and consumer science," says Dunn. Psychographics is particularly appealing to the AHA because cardiovascular events are not only highly common, but require self-care and close monitoring for warning signs to prevent poor outcomes.

Dunn is excited to think beyond the 30-day readmission. Using psychographics and adaptive

technology, he envisions health systems having loyal relationships with their patients beyond the discharge timeline.

Dr. Luke agrees that in the future, avoiding admissions, not just readmissions, will be the goal. "In the value-based model of the future, 85% of the time somebody presents to the hospital it's going to be a failure of the system," says Luke.

With automation and patient profiling, acute-care health systems once ill-equipped to manage population health can become leaders in engaging patients in their own health, all while using fewer resources. ●

PatientBond is a platform for patient behavior change by personalizing population engagement, proven to achieve clinical and business outcomes. Cloud-based and API driven, PatientBond enables you to easily and efficiently engage your patient population with digital, personalized communications (emails, text messaging, Interactive Voice Response). PatientBond uses a proprietary psychographic segmentation model developed by healthcare consumer experts from Procter & Gamble to motivate and activate behavior change.

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