



SOCIETY OF ACTUARIES

**SOA '10 Health Meeting
June 28- 30, 2010**

Session # 16 PD: It's all about the Consumer

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Large Employer Experiments in Benefit Designs to Improve Member Decision Making.

Jean-François Beaulé, FSA, MAAA
June 28, 2010



Agenda



Framing the Employer Challenge for Large ASO clients

- Health population challenges?
- What is the role of the health plan?
- Is it worth it?

Consumer Performance Scoring and Segmentation

- Measurement of decisions to support plan designs

Employer Benefit Plan Experiments

- Targeted Communications
- Coaching Resources
- Individual-Based Design for Diabetics
- Individual-Based Design for All Population Segments



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Environmental Factors - The Struggle to Capture Consumer Mindshare



Food & Beverage and Tobacco Industries



Amount Spent Per Person

\$80

\$24.4 billion annual promotional spend

Health & Wellness Industry



33¢

\$100 million annual promotional spend



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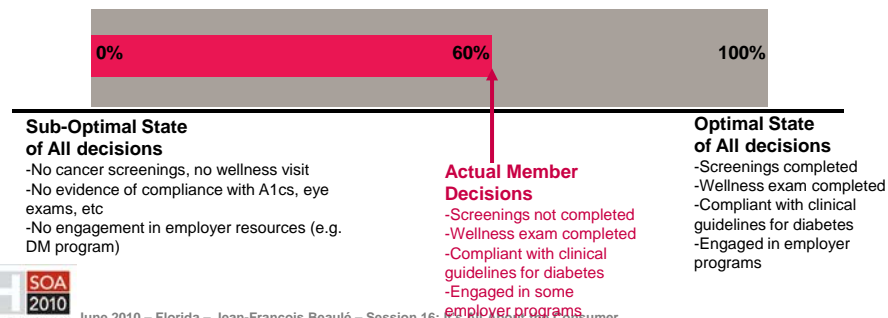
Setting the Stage: Definition of Consumer Health Care Activation



When faced with a health care decision, does the member make the optimal choice, whether clinical, financial or resources?

- In this presentation, we measure the activation through an index that we refer to as the 'Consumer Activation Index™' (the CAI was developed by UnitedHealthcare)
- The goal of the CAI is to score relevant consumer decisions and outcomes as evidenced through claims and clinical activity tools, and if available, biometrics and lab results

Illustration: Scoring of Available Decisions for a diabetic woman aged 55



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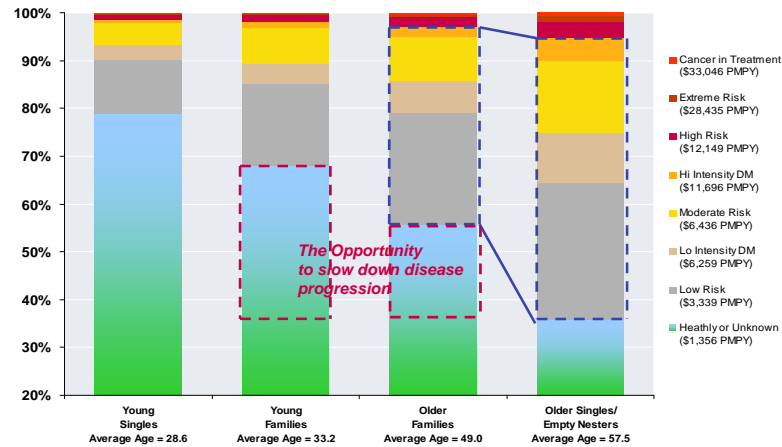
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What should a modern health plan do?

- 1) Manage chronic and high risk conditions
- 2) Slow down onset of disease and its progression



Typical Adult Population Indicates a 42% Increase in Incidence of Controllable Risks Over One Life Stage (41% to 59% incidence)



Large ASO sample clients norm. 2009 Adults Only. % of Adults by level of health risk categories. ~1m adult members analyzed.

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Basic Premise to Improve Decisions:

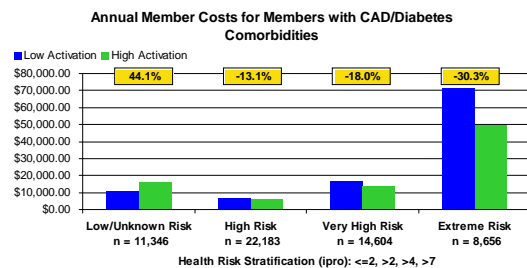
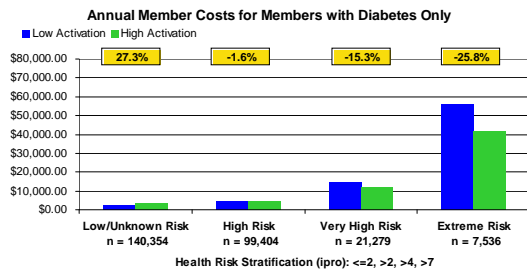
Better Decisions = Better Health = Better Results



Comparison of members with Chronic Illnesses between 'high and low activation' shows significant cost differences

- High Activation - 75% or better: claims evidence of members doing the evidence-based care requirements (medication, exams, prevention)
- Low Activation: same decisions tested; all other members
- Cost difference most pronounced in higher risk strata, ie. severity of illness

Low / Unknown Risk does not show evidence of immediate value, however 'n' is high and disease progression concerns need to be considered



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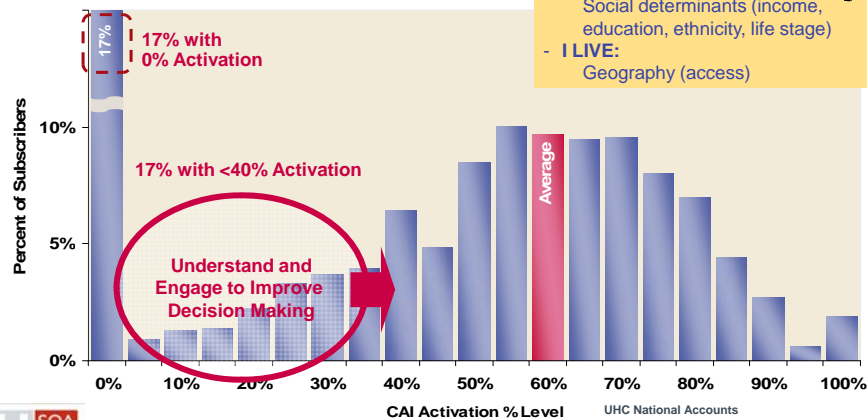
The Average Masks the Opportunities Variability in Member Decision Making



Distribution of members based on health care decision making performance (low vs high scoring members)

Key Variables in Variance:

- **I WORK:**
Plan benefit features
- **I AM:**
Social determinants (income, education, ethnicity, life stage)
- **I LIVE:**
Geography (access)



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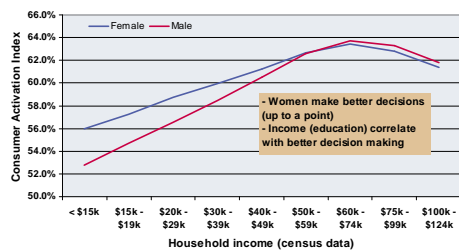
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Nature vs Nurture – What Drives Performance? Social Determinants vs Health Plan Actions

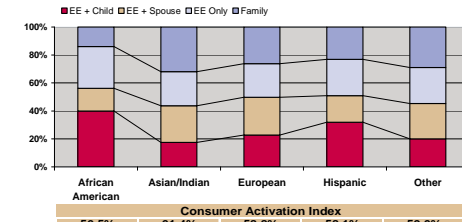


Drawing the line between Population Selection and Actions

Nature (Individual)



Enrollment and Activation by Ethnicity (name / census inference)



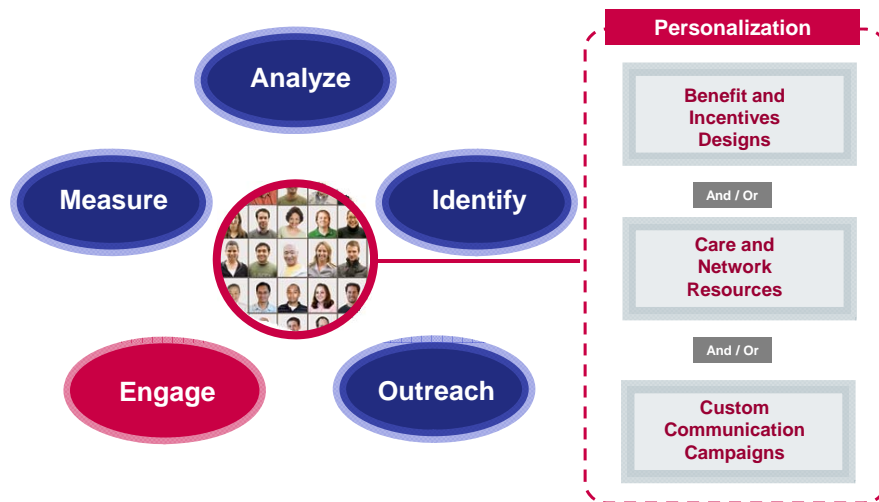
Nurture (Health Plan)

- Cost Sharing Actions: price elasticity
- Enrollment options
 - Selection
- Resources
 - COEs: cancer, transplants
 - Quality provider tiering of benefits
 - Clinicians for episodes
 - Health coaching and decision support
- Rewards / Incentives models

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Health Plan Design Focus ('Nurture') – Driving to a More Compelling Call to Action



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Individual-Based Benefit Design Solutions

CAI Driving Personalization and Targeted Designs



If I AM...

and I DO ...

then I GET ...

**Defining
Communities**

Life Stage
Analysis

Condition /
Health Risk

Health Status
Numbers



**Metrics & Decision
Scoring**

Clinical
Decisions

Resource
Decisions

Financial
Decisions



**Rewards
Design**

Contribution Credits
/ Plan Richness Elig.

Health Incentive
Account Funding

Points and Gift
Cards; Other

**Consumer 'Deal' Defined Clearly at Enrollment
By Employer**



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Consumers Are Voicing Readiness

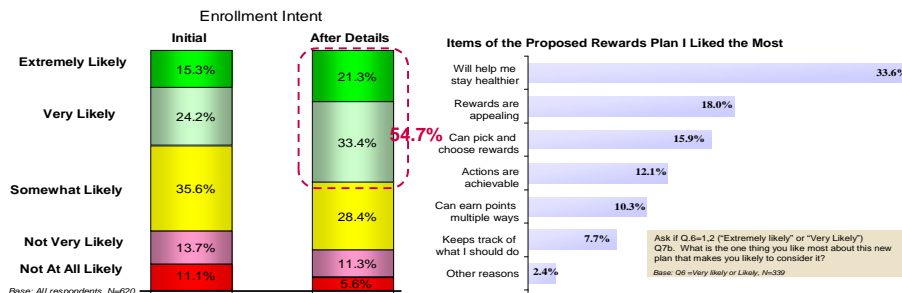
54.7% express a 'very' to 'extremely likely' intent to enroll in rewards programs



Survey focused on a plan design where members would earn rewards based on the completion of specific actions relevant to their life stage or condition.

Members were surveyed twice: first with only partial information about the plan (initial) and then with more information (after details)

Features most appreciated: 'Will help me stay healthier 33.6%', 'Rewards are appealing 18.0%'; 'Can pick and choose actions/rewards 15.0%'



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Case #1 – Targeted Communications

More relevant communication to a person's life stage and cultural attributes improves response rate



Leveraging life stage and cultural diversity attributes, employer created are more compelling call to action for women's cancer screenings.

The Action
Cervical Cancer Screening Communication

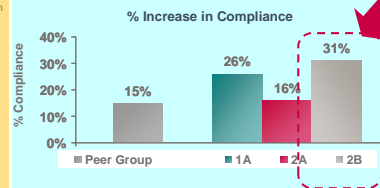
Standard	Enhanced
<ul style="list-style-type: none"> Color Head Appearance Text Color Message Family Same gender physician Same language physician 	
Target Audience 1) All Non-Asian American Women 2) 50% of Asian-American Women	Target Audience 1) 50% of Asian-American Women
Schedule your pap smear today.	
Key Client demographics: <ul style="list-style-type: none"> High tech industry in California Male dominant subscriber base Diverse population Low screenings rates in Asian-American and Indian-American 	

The Result

Company ABC increase (16-31% by audience) higher than peer group (15%)

Results varied by nature of communication:

- Non Asian-American (1A) – Standard Communication: - 26% increase in cervical cancer screenings
- Asian-American (2A) – Standard Communication: - 16% increase in cervical cancer screenings
- Asian-American (2B) – Enhanced: - 31% increase in cervical cancer screenings



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Case #2: Health Coaching Model

Targeted Coaching Resource leads to increased engagement and reduces gaps in care



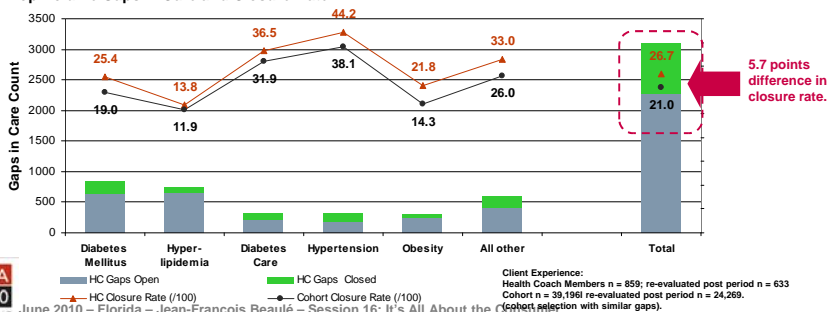
Client implemented and inbound Health Coach line in 2007 (low usage) – Major Changes in 2009

- More services offered to member: chronic care compliance, health coaching
- More marketing of resource to employee base: home, work, targeted mailings by conditions

Results: increased volume of 61%; closure rates for like gaps in care higher by 5.7 points for 'engaged' health coach (HC) members

Service Type	2009 Service Count	Pct of Total	% Change from 2008
Provider Referral	9,918	30%	412%
Program Referral	7,359	22%	-7%
Member Information	5,411	16%	151%
Education Information	5,260	16%	51%
Outbound Follow-up	2,380	7%	143%
Inbound Follow-up	1,453	4%	116%
Triage	1,016	3%	54%
Campaign	282	1%	-89%
Other	3	0%	-98%
Total	33,082	100%	61%
Unique Members Coached	6,197		86%
Services / Member	5.3		-14%

Top Volume Gaps In Care and Closure Rate



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Case #3 – Condition Specific Rewards Model



Call to Action for Pre-Diabetics and Diabetics

Members qualify for a Health Plan providing richer benefits through the completion of specific actions

Actions (tracked with individual scorecard):

- Diabetics:** monitoring of HbA1c, LDL and creatinine, medical visit, retinal exam, medical program engagement
- Pre-Diabetics:** monitoring of HbA1c, LDL, medical visit, wellness program engagement (e.g. weight loss)
- All:** age/gender cancer screenings, health risk assessment completion

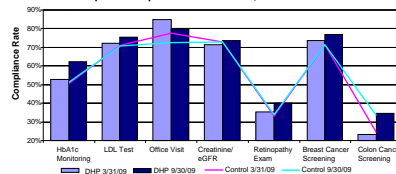
Rewards:

- Richer Plan includes: copay waivers: diabetic related office visit copay waived, *plus* no copays for meters, supplies and medication related to diabetic condition
- Typical employee value in richer plan is **~\$300 to \$500** per member per year



Preliminary Results – 6 months into the program (compliance improvement)

Pre / Post Compliance Improvement for Client, n = 210 diabetics



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Case #4 – 100% Individual-Based Rewards Model



Your Points = 100

150 Points Max

Call to Action to 100% of Adult Population

Earn-Back Reward via Payroll Contribution Credit = \$450/individual, \$900/ family

Actions tracked through Individualized Scorecards:

- For all members: biometrics screenings and results (BMI, LDL, Blood Pressure, Glucose); members can complete a targeted wellness coaching programs if results are not at the targeted norm
- Member specific: age/gender recommended cancer screenings
- Condition specific: maternity program enrollment, diabetes, cardiac and asthma

Rewards (per adult member) following year:

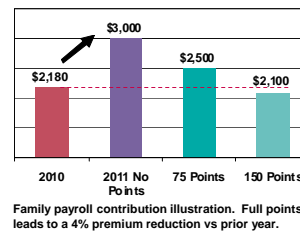
- Payroll contribution earn-back – mid-way (75 points) = \$225/year and full (150 Points) = \$450/year

Launched in January 2010 (~82,000 adult members)

- Early activity is encouraging: 14,000+ biometrics screenings; 31% reached mid points (7 points increase over baseline); 7% at full points (4% increase over baseline)



ROI Managed through Earn-Back Contribution



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Program Costs and Return on Investment



The program and per member costs of these initiatives are not insignificant. Typical costs include:

- Biometrics Screenings (~\$40-60/participant)
- Coaching resources (wellness sessions, weight loss, etc.) \$200-\$400/participant
- Program Management (tracking, member communications general admin): varies depending on how it is structured:
 - Online vs paper communications, in-house vs vendor, retention, etc.

Return on Investment (ROI) is heavily dependent on how incentives are funded and targeted population for actions

- Funding:** 'earn-back' model can be calibrated to a neutral (break-even) point which can allow for a prudent estimate of medical cost savings
- Culture of the company:** the client (or the carrier) may accept an investment to allow the experiment to proceed and evidence to be captured
- Population:** key challenge is the surveying costs of the broad population to zone in on the key cohorts for change (pre-diabetics, diabetics, unhealthy with low engagement, etc). A good statistic to leverage is 'needed number to treat (NNT) to win 1 member'.



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Large Employer-Sponsored Health Plans need to continue to play a key role within the health care industry

- Innovative designs to improve health care decision making
- Stakeholder voice for the industry (160 million consumers)
- Demonstration of cost impact (bending the trend)

Cost and quality improvement through Individual Decision Making is necessary to the sustainability of our health care system (whatever it ends up being)

Supply-Side Initiatives represent a necessary part of the health care cost equation

- Alternative reimbursement models focused on outcomes, adjunct networks (e.g. pharmacy advisor models), partnerships with niche / recognized players (e.g. YMCA)

Health Reform (Policy) will drive some modernization and improvements in access, however much remains to be done for cost containment.



It's All About the Consumer

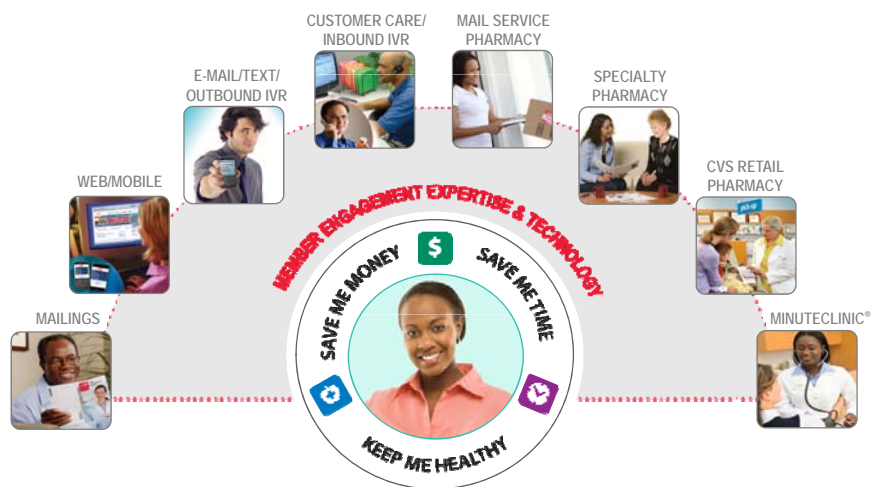
SOA '10 Health Meeting
Orlando, Florida

Presented by:
Jack Bruner, FSA
Executive Vice President, Strategic Development
CVS Caremark

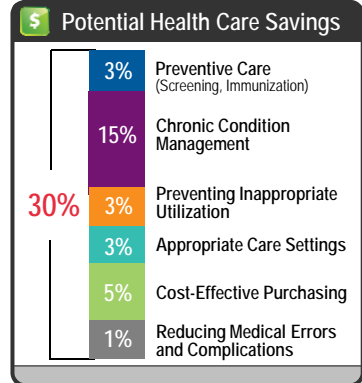
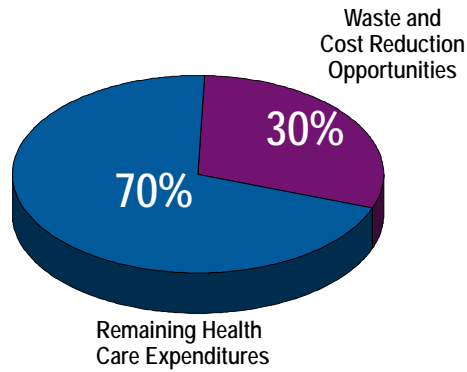
June, 2010



Engaging Consumers- A Provider View



Decisions that Make a Difference: The Consumer Engagement Opportunity



We estimate that 30% of current health care expenditures could be eliminated through optimal behaviors.

Sources: CVS Caremark data combined with third-party references including the United States Census, Centers for Medicare and Medicaid Services (CMS), the World Health Organization (WHO) among others, compiled by Jack Bruner, CVS Caremark.

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Consumers are Confused by The Health Care System

- The health care system doesn't make it *easy* for consumers to do the right thing.
- They don't know who can tell them how to save money
- Providers involved with their health care are disconnected from one another.
- Time demands to stay adherent create big challenges for many



Source: 2009 CVS Signature Services Study by Synovate

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Consumers are Experiencing Barriers and Frustrations



Misconceptions/misinformation
"I feel better; I don't need to keep taking my medication."



Don't understand the benefit
"Our benefits are too complicated."



Not enough time
"I work two jobs, take care of my family and parents; there are not enough hours in the day."



Lack of help
"Without family nearby, who is going to help me?"



Cost is too high
"I can't afford to be on all these medicines."

Learnings and Support Strategies

→ The timing of adherence message is critical to staying on therapy

→ 150% better response rate when directly connected to an individual and can act immediately

→ 90 Day Prescriptions, refill reminders and automatic renewal improve adherence

→ Proactive messaging, multiple access points, reinforcement based on preferred channels

→ Citing specific annual dollar savings opportunity increases response rate

The key to controlling costs and improving health is aligning insights, personalized messaging, timing and incentives.

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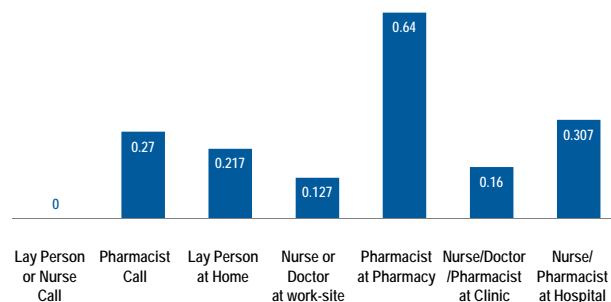
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Consumer Research: Careful Review of the Medical Literature

Pharmacist Intervention Is Superior to Other Adherence Efforts

COHEN'S D STATISTIC REVEALS RELATIVE STRENGTH OF INTERVENTIONS IN META-ANALYSIS OF OVER 300 PUBLISHED STUDIES



Source: Cultrona et al. Modes of delivery for interventions to improve cardiovascular medication adherence. Submitted for publication. CVS Caremark Harvard Adherence Partnership, 2009.

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What Consumers Want: Personalized Counseling



Joy's Focus

Save Me Money

Save Me Time

Keep Me Healthy

Personalized Opportunities

- "Choose generics and save \$304/yr." (Plan saves \$1609.)
- "Choose mail pharmacy and save \$90/yr." (Plan saves \$61.)
- "Use ExtraCare® Health for 20% discount on diabetes supplies."
- "Would you like to receive refill reminders via e-mail?"
- "You can choose home delivery or pick-up at CVS/pharmacy."
- "You forgot to reorder. Let me get you a bridge supply."
- "Here's why it's important to keep taking your new prescription."
- "Can we talk about this prescription you haven't filled lately?"
- "You can go to MinuteClinic® for diabetes monitoring."

More clear choices to save money, time and improve health show, "What's in it for me."



Consumer insight source: Health IQ Consumer Behavior Research
Projections based on CVS Caremark data. Individual results will vary based on plan design, formulary status, demographic characteristics and other factors.
Client-specific modeling available upon request.
Source: CVS Caremark Enterprise Analytics, 2009.

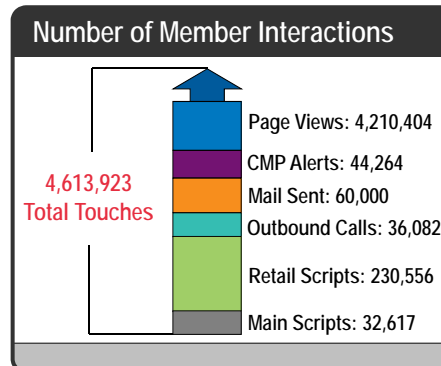
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Transforming Consumer Health Engagement Deliver Options More Frequently and Consistently

- Personalized interactions with human beings are critical to consumer engagement
- 27 → 9 → 1
- Consistent execution driven by the Consumer Engagement Engine
- Honor both channel preference and combinations



The repetition and resonance of key concepts across time and media is fundamental to behavioral change.

Sources: CVS Caremark study of Employer client members. CVS Caremark Enterprise Analytics or ANCS.

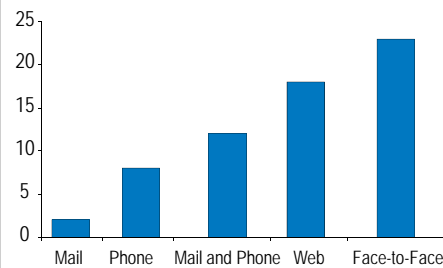
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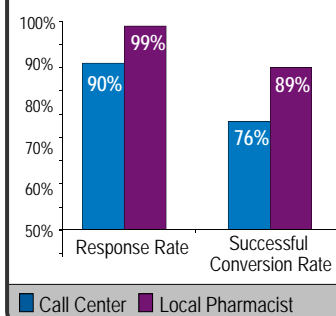
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The Point-of-Care Consumer Engagement Model: More Effective Consumer and Physician Support

Percent Member Response



Physician Interventions



Our role in local health teams and our real-time engagement optimize value.

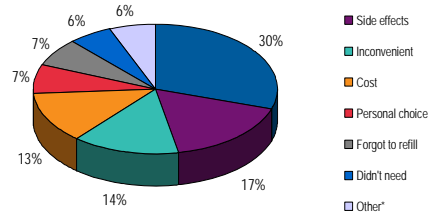
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Leading Strategies to Improve Adherence

Why Nonadherence Happens: Non-Persistence after 2+ Fills Survey



Proven Solutions

- 90 vs 30 Day Fills
- Clinical Support
- Mail or Retail Access
- Physician Outreach
- Value Based Design
- Pharmacy Advisor

*Other includes: Didn't need 5%; in hospital/nursing home 5%; changed drug stores 5%; changed medications 5%; went on vacation 4%; worried about side effects 3%; had samples 1%

45% of plan participants cite forgetfulness as a root cause of non-adherence.¹

CVS Caremark Analytics & Outcomes, 2008. 1. BCB analysis, primary consumer research using call center 8/23/07 - 9/13/07

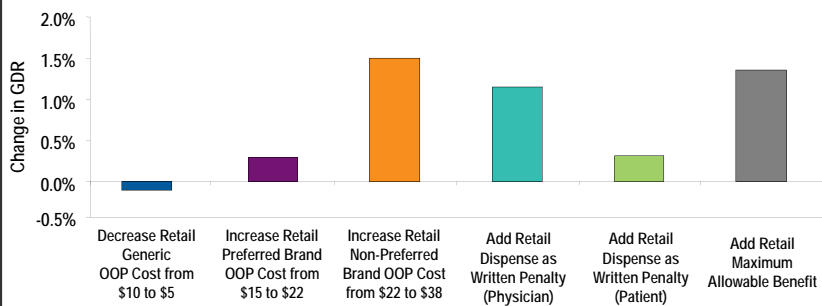
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Generic Plan Design: Understanding Behavioral Incentives

Impact of Selected Pharmacy Benefit Design Changes on GDR



Potential added costs drive greater behavioral changes than incentives.

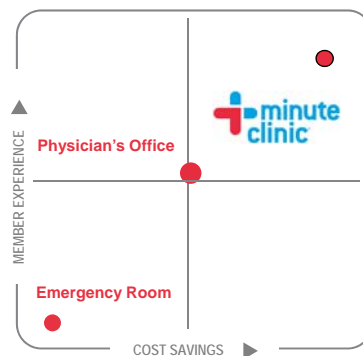
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"I Want No Appointment, Need 15 minute Turnaround, 100% Quality at Half the Price"

- Acute Care
 - Cold and flu
 - Urinary tract and minor illness
 - Coordination with medical home
- Preventive Care
 - Flu shots
 - Immunizations
 - School physicals
 - Health screenings
- Condition Management Support
 - Ongoing lab tests
 - Convenient access to supplies
 - Consultation with medical home
 - PHR integration



MinuteClinic delivers care at a 50-80% savings with Joint Commission Accreditation and a 95% consumer satisfaction rate.

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Pharmacy Advisor™: How It Works

1. Identify members who can benefit
2. Outreach to engage and motivate (mail, phone, face-to-face)
3. Member counseling (mail, phone, face-to-face)
– Prescriber engagement if needed
4. Monitor and follow-up
5. Report



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Managing Diabetes with Comprehensive Pharmacy Support

Diabetic Member Experience

What Do I Need to Know?

- How to Get Started
- My Diabetes Medications
- Importance of Blood Glucose Monitoring
- Recommended ADA Exams and Labs

How Can I Afford All of This?

- Prescription Savings Opportunities
- Blood Glucose Monitor Programs
- Diabetes Supplies and OTCs
- Exams and Lab Tests

Who Can Help Me Stay on Track?

- Pharmacist
- Diabetes Advocates
- Physicians
- DM Program/Health Advocate Support
- Nurse Practitioners

Diabetic Services Needed

Member Resources

- Diabetes Care Kit

- First-Fill Adherence Counseling

Gaps in Care and Adherence Counseling

- Phone, Letters and Web

- Face-to-Face

Patient Education and Support

- Phone, Letters and Web

- Face-to-Face

- Diabetes Advocate

- MinuteClinic®

Multi-Channel Savings Counseling Copay Wavier, Generic and Mail Savings

- Phone, Letter and Web

- Face-to-Face

- Referral to Free Meter Programs

- 20% ExtraCare® Health Savings

- Affordable, Convenient MinuteClinic Visits

Fully Informed Interactions

- Full View of Patient History Care Needs

- Pharmacist/Physician Coordination

- Integrated Health Messaging/Data Exchange

- MinuteClinic Exam and Lab Data Sharing

**Integrated
Pharmacy Support
Resources**

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First 80 Days: Positive Influence on Gaps-in-Care

CALL CENTER ADVISORS

FACE-TO-FACE ADVISORS

33% Approved

Patients Approve
Prescriber Outreach

87% Approved

30% Positive

Prescriber
Response

66% Positive

10% Positive

Overall
Positive Influence

57% Positive

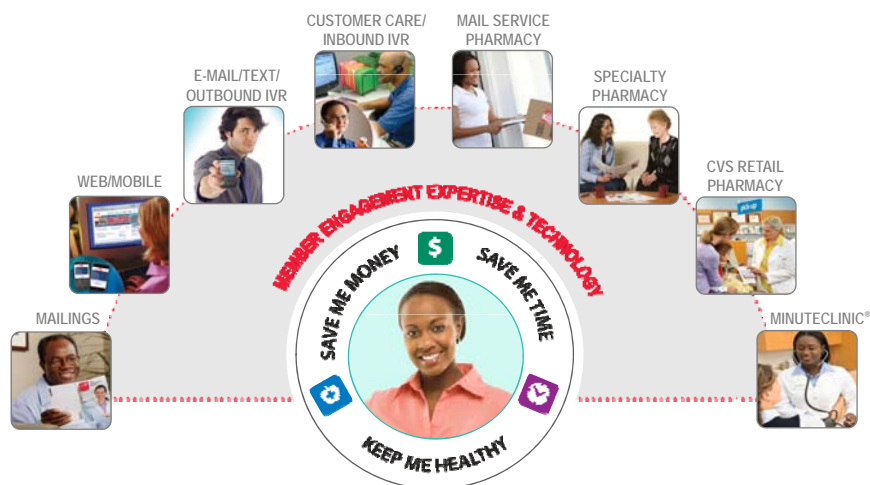
Combined local and centralized outreach drive differentiated results.

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Engaging Consumers- A Provider View Health Care will be Transformed.



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It's All About the Consumer... Data

Ksenia Draaghtel, ASA, MAAA June 28, 2010

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Milliman

Overview

- What do we know about the consumer?
 - What is consumer data?
 - Where does it come from?
 - Why do we care?
- Consumer Data for Health Actuary
 - Practical Applications
 - Predictive power of lifestyle data

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Milliman

What Do We Know About the Consumer?



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What Do We Know About the Consumer?



4 June 8, 2010



What Do We Know About the Consumer?

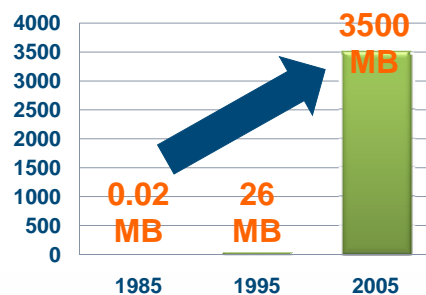


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Sources of Consumer Data

- Government – Public Records (e.g.. USPS)
- Financial Services
- Surveys
- Warranties
- Loyalty Programs
- Internet Purchases
- Subscriptions
- Census Variables from the 2000 U. S. Census



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Consumer Data Aggregators



7 June 8, 2010



From Health Actuary's Perspective...

Medical studies have proven the link between
Lifestyle characteristics and medical conditions

- **The US Surgeon General:**

*70% of the diseases and subsequent deaths in the U.S.
are lifestyle-based*

- **The Centers for Disease Control:**

*Lifestyle-based chronic diseases account for 75% of the
United States' \$1.4 trillion medical care costs*

- **INTERHEART Study (2004)**

Nine lifestyle predictors attribute to 90% of heart disease

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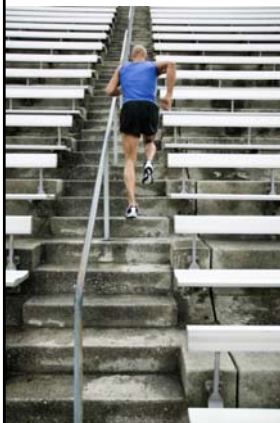


Examples From Past Implementations

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Risk of Cardiovascular Disease by Favorite Interest



Reported Favorite Interest	Prevalence Rate
Running/Jogging	0.60%
Bicycling	1.33%
Golf	2.36%
Fishing	3.02%
Camping/Hiking	3.39%
Home Workshop/Do-It-Yourself	3.42%
Avid Book Reading	3.91%
Walking for Health	4.03%
Flower Gardening	4.55%

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Depression Prevalence Model

Predictor Variable – Post Secondary Education



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Diabetes Prevalence Model

Predictor Variable – Casino Gambling

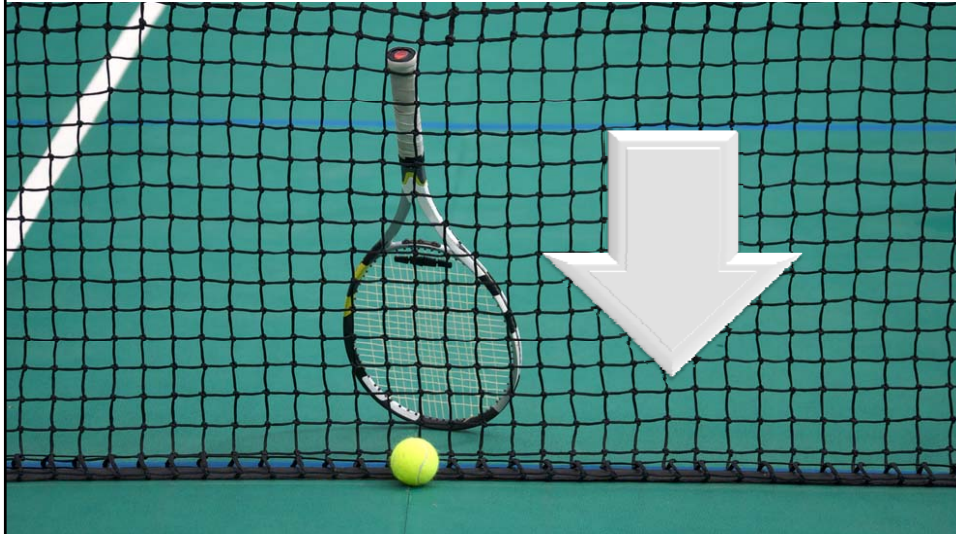


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Diabetes Prevalence Model

Predictor Variable – Physical Fitness / Exercise



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Anxiety Prevalence Model

Predictor Variable – Money Making Opportunities

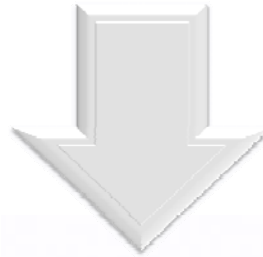


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Pregnancy Prevalence Model

Predictor Variable – Presence of Pets



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Practical Applications

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Consumer Data Potential

Risk selection applications:

- Group underwriting
- Targeted Marketing
- Predicting risk adjustment error (post reform)

Population identification:

- Disease Management / Wellness Programs

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Application: Group UW

Goal = More Accurate Claim Cost Prediction

Target Market = Mid-size group (50-250)

Approach = Model claim costs on lifestyle data alone

Result = Lifestyle Score

Applications to new business rating:

- Competitive edge over incumbent carrier

Applications to renewal rating:

- Risk Adjuster = short term prediction of risk
 - Lifestyle Score = long term prediction of risk
 - ~40% correlation between the two

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Application: Target Marketing

Goal = Find favorable risks, without UW (after reform)

Target Market = Individual / Group

Approach = Model claim costs on lifestyle data alone

Result = Lifestyle Score

Implementation:

- Purchase consumer data for a large target population (i.e. entire State of Iowa)
- Score the population, obtain predicted lifestyle score
- Actively market to individuals with lowest lifestyle scores

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Application: Predict Error in Risk Adjustment

Goal = Find advantageous risks, given risk adjustment

Target Market = Individual / Group

Approach = Model RA error on lifestyle data alone

Result = Lifestyle Score

Implementation:

- Purchase consumer data for a large target population (i.e. entire State of Iowa)
- Score the population, obtain predicted lifestyle error score
- Actively market to individuals with largest (favorable) lifestyle error scores

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Lifestyle Prediction – How Powerful?

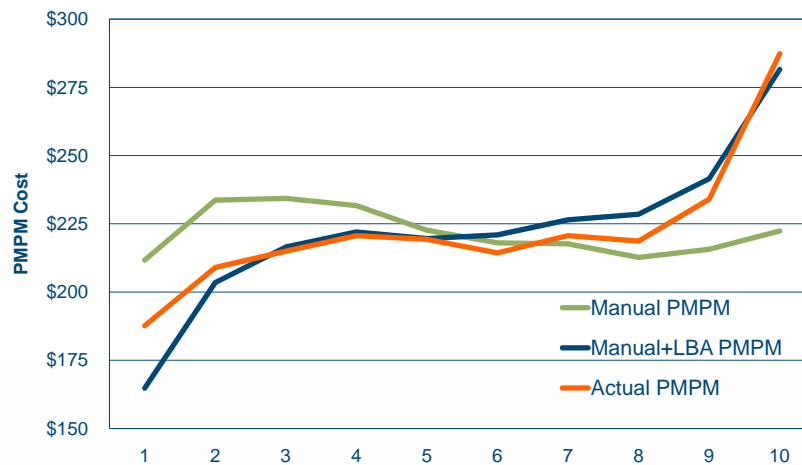
Lifestyle Score Deciles*	Average Age-Sex Factor	Actual PMPM / Age-Sex PMPM
1	0.982	86%
2	1.081	87%
3	1.085	89%
4	1.062	93%
5	1.013	97%
6	0.980	98%
7	0.967	102%
8	0.939	105%
9	0.941	111%
10	0.949	136%
Total	1.000	100%

* ~9,300 members per decile

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Performance of Lifestyle Prediction



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Application: Population Identification

Goal = Find best candidates for DM/Wellness

**Approach = Model Likelihood of Participation (Savings)
on lifestyle data alone**

Result = Participation (Savings) Score

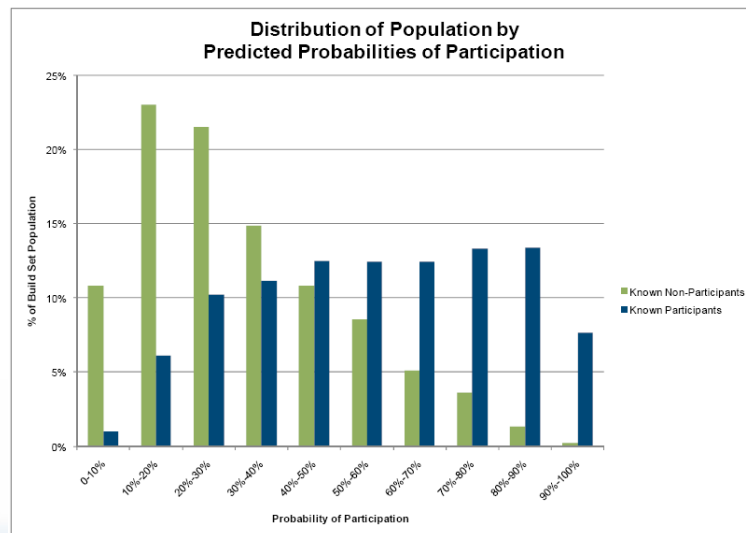
Implementation:

- Purchase consumer data for the entire population of candidates for a program/initiative
- Score the population, obtain predicted participation (savings) score
- Actively contact individuals with highest participation (and/or savings) scores

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Example – Participation Model



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Example – Participation Model

Table 1 – Sample Probability Model

Factors Decreasing Participation

No loss of interest
Excellent health (reported in HRA)
Not depressed
Have grandchildren
Disabled, low income, or dual eligibility status
Higher CDPS risk score
Higher Age

Factors Increasing Participation

Have diabetes
Have asthma
Poor health (reported in HRA)
At least 2 ER visits within last 12 months
Presence of accounts in bad debt
Longer length of residence
Diagnosis for psychosis/neurosis/depression/psychotherapy
Disabled status

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Table 2 – Sample Program Savings Model

Factors Decreasing Savings

Visited physician or clinic at least 2 times
Diagnosis of malignant neoplasm
Diagnosis of psychopathic personalities
Disabled, low income, or dual members
Rx noncompliance – adherence less than 80% for diabetes on Insulin
No overnight hospital stays
Rx noncompliance – adherence less than 80% for CAD/CHF on beta-blockers
Nutritional & miscellaneous metabolic disorders

Factors Increasing Savings

Cervical spinal fusion
Digestive system diagnoses
Diagnosis of psychosis
Higher CDPS risk score
Alcohol/drug abuse or dependence with rehabilitation therapy



To Conclude

- Explore consumer data
 - Numerous applications
- Lifestyle is a powerful predictor of health status
- Alternative tool to remain competitive and profitable post healthcare reform

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Questions?

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