

VITALITY – CHANGING HEALTH BEHAVIOR THROUGH INCENTIVES

EXECUTIVE SUMMARY

Vitality is a product and platform that systematizes wellness in a rigorous, but fun and inspiring way. Vitality was developed in South Africa where it now covers in excess of 1.2 million people. It has had a significant impact on making them healthier. Vitality is being rolled out in the United Kingdom, where it already covers over 150,000 people. From 2008, Vitality is being made available in the US – it has the real potential to make Americans healthier.

The growth in lifestyle related disease has given rise to a burgeoning wellness industry in the US. Most emerging wellness programs, however, are largely uncoordinated, ineffective and lacking in scale. Vitality provides a proven program which engages members in wellness and rewards them based on their level of engagement. Vitality uses behavioral economic theory in order to achieve desired changes in lifestyle behavior. Members are incentivized through rich and immediate rewards.

Some key statistics and features of Vitality are:

- The program covers over 1.5 million lives in South Africa, the United Kingdom and United States.
- Over 150,000 employers, operating in a large variety of industries and of varying group size, participate in Vitality.
- Vitality provides rewards for over 15 million verifiable health and fitness events on an annual basis.
- The program removes barriers to access of wellness activities whether it is through providing education, support or financial subsidies such as payment of health club dues.
- The program is non-discriminatory in its construct and caters for individuals across the continuum of people's current status of health.
- The program is individualized according to the individual member's state of health and relevant risk factors.
- The program has the capacity and infrastructure to scale up very quickly to meet the demands of employers of any size.

THE RISE OF LIFESTYLE-RELATED ILLNESS THREATENS TO REVERSE CENTURIES OF PROGRESS IN HEALTH AND QUALITY OF LIFE

The Centers for Disease Control and Prevention estimates that chronic diseases account for 70% of all deaths in the United States and that the medical care costs of people with chronic diseases account for more than 75% of the nation's \$2.3 trillion medical care costs. Two-thirds of American adults are considered to be either overweight or obese. A rich body of evidence exists which attributes the increasing burden of chronic disease to lifestyle factors such as smoking, poor eating habits and physical inactivity.

DESPITE DEMAND, MOST EMERGING WELLNESS PROGRAMS ARE LARGELY UNCOORDINATED AND INEFFECTIVE, AND CANNOT BE SCALED

This growing burden of ill-health has a particularly large impact on the workforce. This in turn has forced employers to start to think about what they can do to get their employees healthy. An emerging market of Wellness Programs has started to respond to this demand, but the market currently reflects a 'cottage industry' in its early stages of development. While considerable bodies of clinical studies exist, the ability to leverage these into effective Wellness Programs within health plans, is extremely limited. In general, Wellness Programs exhibit the following shortcomings:

1. Most interventions largely ignore behavioral economic theory. They tend to be disconnected from people's daily lives, and don't show enough recognition of the reasons why people find unhealthy lifestyles easier and more appealing. Behavioral economics teaches us (a) that people tend to underestimate their own health risks and (b) that individuals attach greater value to present benefits than future promises. This explains why people don't always do things that they know are good for them and are therefore unlikely to bring about a meaningful change in lifestyle behavior.
2. They typically do not link into other components of healthcare management, such as disease management programs.
3. The interventions tend to be disconnected from people's daily lives, and don't show enough recognition of the reasons why people find unhealthy lifestyles easier and more appealing.
4. Since they tend to consist of a series of separate interventions, they are difficult to scale across a broad population.

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VITALITY PERSONAL PATHWAYS: CUSTOMIZING WELLNESS FOR EACH MEMBER

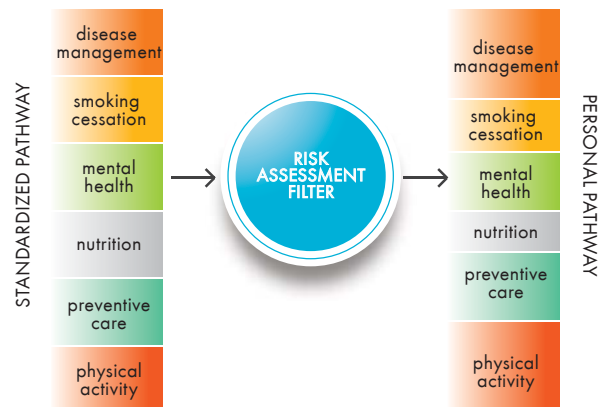
Vitality activities and outcomes are measured by Vitality Bucks[®], which in turn gives the member a Vitality Status[®]. Members enjoy richer rewards as their Vitality Bucks, and Vitality Status, increase.

At the core of the Vitality program is Personal Pathways[™], a proprietary system developed by Vitality, which personalizes a health enhancement plan for each individual.

Building a unique Personal Pathway for each Vitality member is an interactive process: Vitality gathers information from the member, analyzes it, and provides feedback on appropriate goals and activities that will help the member to manage their health. The Vitality Personal Pathways process is based on four simple steps:

1. *Health data input* - The member completes a Health Risk Assessment (HRA) and/or biometric screening in order to determine current health status.
2. *Risk assessment* - The HRA data is analyzed and used to determine the relative risk of the member as a result of their health behavioral risk profile.
3. *Personal Pathways components* - On the basis of the Risk Assessment, interventions across the health continuum are weighted in order to incentivize participation in risk-reducing activities appropriate to the individual. Additional Vitality Bucks, over-and-above the base Vitality Bucks, are assigned to at-risk and chronically-ill members to encourage participation and in recognition that attaining the desired goals may be inherently more difficult for them.
4. *Customized goals* - Vitality allows the member to identify a personal goal related to a particular risk factor, and assigns additional Vitality Bucks for the attainment of the goal.

The Personal Pathways approach is summarized in the graphic below. As is evident, the weighting of the various health interventions will be customized to take into account the member's specific health characteristics and risk factors.



The elegance of the Personal Pathways approach is that it creates the appropriate incentives across the entire population, regardless of health status, age and physical ability. In this regard, Vitality aims to keep healthy members out of the healthcare system, and prolong the progression of disease in at-risk and sick members, all of which has been shown to positively impact on healthcare costs. The allocation of additional Vitality Bucks for individuals who are at-risk or ill is an important mechanism to overcome barriers to change, and to drive continued engagement in the program.

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THE COMPONENTS OF PERSONAL PATHWAYS

Each member's Personal Pathway is based on proprietary analyses of both self-reported and validated information on health status and lifestyle activities. The building blocks of the Personal Pathways structure are as follows:

1. *Modifiable Health Risk Factors* - These are scientifically identified behaviors and biometric measures that can be controlled through healthy lifestyle choices. Vitality is built around fourteen risk factors that have been identified from a review of the scientific literature to be both manageable, and have significant consequences for U.S. medical care costs.
2. *Health Risk Assessment* - The Vitality HRA is an online interactive tool that gathers self-reported information about each of the fourteen health risk factors, and develops a profile of each member's unique health risk characteristics. To ensure appropriate health outcomes, the information gathered from the Vitality HRA is leveraged into the health behavior change tools and programs.
3. *Vitality Check™* - Vitality Check is a biometric test provided by an independent medical laboratory and is the second source of member health information. Factors tested include height and weight, blood pressure, cholesterol, fasting blood sugar level, and cotinine level (tobacco use).
4. *Vitality Age* - Vitality Age is a proprietary tool used to analyze each member's relative health risk profile. It uses the information gathered from the HRA and Vitality Check to determine a risk-adjusted age that can be used as a barometer of health status. The Vitality Age can be compared to chronological age to provide an easy-to-understand indication of health status.
5. *Health Risk Management Activities* - Behavior change is at the heart of the Vitality program. To help manage risk factors and maintain a healthy lifestyle, Vitality provides members with a choice of activities carefully chosen to address their specific risk factors. Vitality further encourages participation by subsidizing access to best-of-breed wellness providers within its extensive partner network.
6. *Vitality Rewards®* - Rewards are an important tool to encourage behavior change. Vitality uses incentives called *Vitality Bucks* as a positive reinforcement tool to encourage members to adopt and maintain healthy lifestyles. Additional *Vitality Bucks* are available to at-risk members to encourage participation in activities that will manage their specific risk factors.

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THE SCIENCE UNDERPINNING VITALITY AGE

Vitality Age is a proprietary tool used to analyze each member's health risk profile. It uses the information gathered from the HRA and Vitality Check to compare each member's health profile to that of an average risk of their same age and sex. The comparison is based on scientific evidence of the health and medical care cost consequences of each member's unique set of health risk factors.

Vitality Age has been developed using rigorous academic research. Its basic design principal is to develop relative risk factors, based on well-designed epidemiological studies, of the probabilities of people with measured degrees of health risk factors, and no existing chronic disease, being diagnosed with a severe chronic disease (e.g., heart disease, stroke, circulatory diseases, diabetes, and cancers) within 10-years of assessment. The developers have utilized their extensive clinical expertise to ensure that valid information from the medical literature has been integrated into a complex algorithm that provides an accurate measure of relative risk factors.

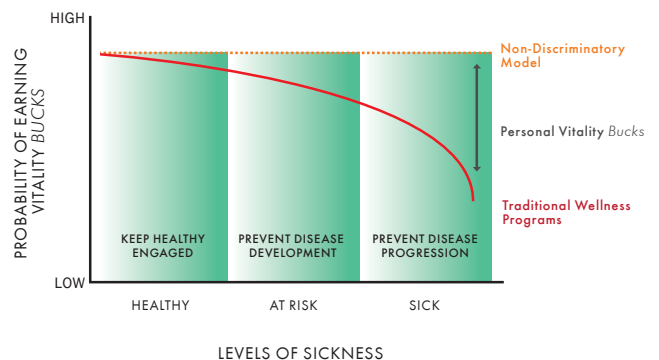
There are two outputs to members from Vitality Age; first is a comparison of their risk-adjusted age to their chronological age; second is a list of each member's health risk factors, and information about their relative importance in driving any difference between chronological age and Vitality Age.

Vitality Age and the individualized list of relative risk factors are powerful tools to help members to understand their health, and the actions that they can take today to improve their health in the future.

EARNING VITALITY *BUCKS* WITHIN PERSONAL PATHWAYS ENVIRONMENT

The research literature demonstrates the importance of rewards in encouraging behavior change. To ensure that Vitality is non-discriminatory to all members regardless of health status, Vitality *Bucks* are allocated at three different levels - for the base program, for undertaking activities in line with the Personal Pathway, and for achieving specific goals.

The goal of the Vitality reward program is that members will have roughly equivalent opportunities to earn Vitality *Bucks* regardless of their age, sex, and unique health risk factors. Members already leading healthy lifestyles will receive rewards for maintaining their lifestyle; members with known health risk factors will receive rewards for making positive changes in their lifestyles and for actually reducing or returning their risk factors to normal; and, members with known chronic conditions will receive rewards for participating in their employer's disease management program.



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ADVANTAGES OF THE VITALITY™ PROGRAM

The success of the Vitality program derives from the following key advantages:

1. It is constructed with an understanding of behavioral barriers. It drives behavior through the use of rich and immediate rewards, which is far more effective than appealing to individuals to change behavior for health reasons alone.
2. The scope of the program stretches across the continuum of people's current states of health. In the case of healthy individuals the emphasis may be on promoting physical activity whereas in the case of individuals who are considered at-risk, the emphasis may be on factors such as regular preventive screening. Similarly, it caters for the health needs of different age groups, ranging from children to the elderly.
3. Interventions address all major modifiable risk factors.
4. The program facilitates equitable access. Members are equipped with sufficient knowledge and tools so as to be properly informed of what they should do. Financial barriers to health and fitness facilities are removed or reduced for example by way of subsidized access to gyms and exercise clubs.
5. The program is objective and non-discriminatory in its application. Members are given equal opportunities of rewards regardless of initial state of health.
6. The program is inspirational, fun and easy to use.
7. Where applicable, it integrates into the employer's health insurance plan and disease management programs.

VITALITY HAS SUCCEEDED IN CHANGING BEHAVIOR AND IMPROVING HEALTH

Vitality is successfully helping members to get healthier. A client survey undertaken on Vitality in the UK found that over two fifths (44%) of individual members surveyed said that being a Vitality member has encouraged them improve their health, while over a third (36%) said they had changed their lifestyle in order to collect Vitality Bucks.

A large piece of research using Vitality data has just been completed. The study used data from 900,000 people, and was done together with academics from Harvard Medical School, the University of the Witwatersrand and University of Cape Town. This research exercise is unprecedented in its scope and the amount and quality of data. Results are being submitted to leading academic journals for publication.

The key finding is that "highly engaged beneficiaries of Vitality experienced lower costs per patient, shorter stays in hospital, and fewer admissions compared to all other groups." The study recognizes that there are many covariate factors at play and uses advanced statistical techniques to exclude these factors as explanatory effects.

The sub-group analysis of those conditions deemed to be changeable by prevention interventions shows that Vitality-engaged persons have significantly lower cost per patient for hospital claims and fewer hospital admissions compared to all other beneficiaries. The difference in cost per beneficiary was 7.17% lower for cardiovascular disease, 15.09% lower for cancers and 21.38% lower for endocrine and metabolic diseases in the highly engaged group compared to all other groups combined.

THE MEMBER EXPERIENCE

Neil Sequeira is a 32-year old male who works as a financial advisor at a large banking group. His job is stressful and he works long hours.

"I was a massive 250 lbs and my diet consisted mainly of junk food, irregular meals and too much alcohol. I decided to go for a Vitality Check to earn some easy Vitality Bucks because I wanted to make use of The Ritz-Carlton benefit. I was alarmed to learn that my cholesterol and blood pressure were dangerously high. In short, I was headed for bypass surgery! With these results, Vitality developed a Personal Pathway for me to help me improve my health. I took up the challenge and made dramatic change to my lifestyle. I joined the gym and started training three times a week. I also joined a weight management program through Vitality. In nine months I had moved to Gold Vitality Status. Not only has my health and wellbeing improved significantly, but I'm also enjoying the lifestyle benefits and rewards made available through Vitality."

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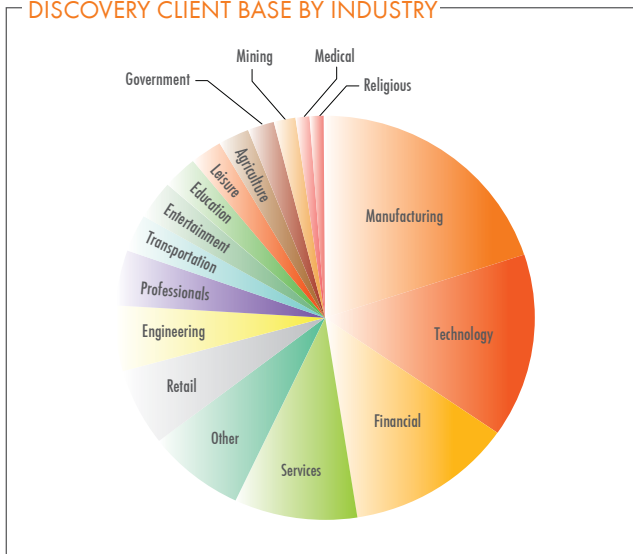
ABOUT DISCOVERY

Vitality was developed by Discovery Holdings, a South African insurance company listed on the Johannesburg Stock Exchange, which has annual revenues of \$3bn. The Vitality program has operated for over 10 years in South Africa and is offered to lives insured under Discovery's Health and Life insurance products. Discovery covers several thousand large employers and over 150,000 small companies and medium employers. Vitality is also offered in the UK to policyholders of PruHealth, a 50/50 joint venture between Discovery and Prudential plc. In the United States, Vitality is available to medium and large size corporations in the US on a stand-alone basis.

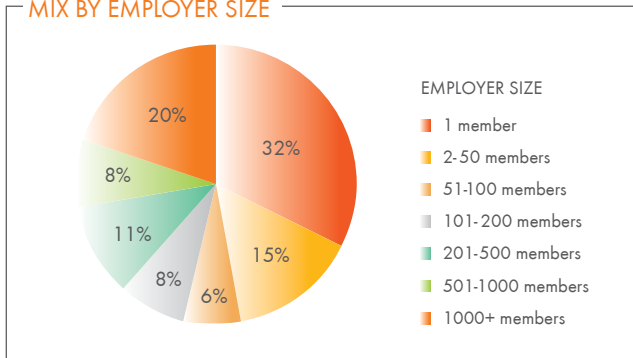
SOUTH AFRICA CLIENT LIST*

Nike
 McKinsey
 IBM
 Compaq
 Dell
 Oracle
 BHP Billiton
 Coca-Cola
 South African Airways
 University of Johannesburg
 Mittal Steel
 Ernst and Young
 Deutsche Bank
 Microsoft
 Merrill Lynch
 3M
 Bidvest
 Goodyear
 Sun International
 Vodacom Group
 Kraft
 Unilever
 ING Barings
 Citibank
 Panasonic
 Samsung
 Chevron
 Investec Bank Limited
 Toyota
 Zurich Insurance Company
 Cadbury Schweppes
 AIG
 Sun Microsystems
 EMI
 ABB Holdings
 Airports Company of SA
 Clover
 Rand Merchant Bank
 University of Cape Town
 Goldman Sachs

DISCOVERY CLIENT BASE BY INDUSTRY



MIX BY EMPLOYER SIZE



* not a complete list

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UNITED KINGDOM CORPORATE CLIENTS*

Cannons Health & Fitness	Forsters	Agility Logistics	Bevan Brittan LLP
Burlington Resources	Gladedale Holdings	Panduit Europe	Sabre Europe
Phoenix IT Group	River Island Clothing	The Thinc Group	Select Appointments
Bull Information Systems	The Marketing Store	L-3 Communications	Prudential
Seymour Pierce	PYV Group	ICICI Bank UK	Firmenich UK Limited
Trowers & Hamlins	Towers Perrin	Canadian High Commission	Landsbanki Securities
Sybase	Panmure Gordon & Co	Foster Yeoman	Burberry
Smith & Nephew	Musgrave Retail Partners	Porsche	Norton Rose
Moto Hospitality	Mizuho Corporate Bank	Tullett Prebon Ltd.	Hanover Housing Association
Gissings Group Management	TSL Education	Genworth Financial	Tullett Prebon (UK) Ltd.
Collins Stewart Europe Ltd.	F&C Asset management	Marex Financial	UK Athletics
Misys	Punter Southall Group	MTV Networks	McAfee
Volvo	W H Malcolm	BT Rolatruc	GEA Group
American Institute for Foreign Study	Gartmore Investment Management	Thermo Fisher Scientific Microbiology	Merial Animal Health
Toshiba Information Systems	Level 3 Communications	Monsoon Accessorize	IMI
Barkers	Tokyo Electron Europe	L E K Consulting	Evolution Group Services
Daikin Airconditioning	Waters Corporation	Riskmetrics	TK Maxx
Gartner	Reynolds Porter Chamberlain	Berwin Leighton Paisner	Segro
Sesame Services	The Miller Group	SQS Software Quality Systems	Tyser Group Services
Nexen Petroleum	Reed Smith Richards Butler	Discovery Communications Europe Limited	Imprint
ICICI Bank UK	Bloomberg L.P.		

*not a complete list