



Reversing the health and financial implications of the COVID-19 screening deficit

September 2022



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The COVID-19 pandemic brought the importance of knowing one's personal health status into sharp focus. Over the same period, a paradoxical screening deficit emerged – a sharp decline in essential preventative health screening and assessments. Left unaddressed, this screening deficit has the potential to leave an enduring negative impact on individuals and the Discovery Health Medical Scheme over the long-term. Importantly, this paper shows:

01

Covid-19 caused a material shift in healthcare utilisation over the last two years with members choosing to defer healthcare in order to avoid exposure to the virus. These shifts have caused a material screening deficit, with the rate of essential preventative screening having decreased by 21%, on average, over the last two years.

Screening and prevention, while perceived as non-essential, is a critical component of ensuring long-term health. Both general and condition specific screening for diabetes, breast cancer, cervical cancer and prostate cancer have all declined between 10% and 50% over the pandemic period and remain depressed in 2022.

02

Left unaddressed, the screening deficit will have material implications for the early detection and management of conditions such as cancer and lifestyle diseases like diabetes and hypertension. Without the early identification and management of these conditions, a person's life expectancy and their years spent in good health deteriorates significantly.

Based on Discovery's Healthy Futures Data, early detection of risk for lifestyle diseases such as diabetes and hypertension can allow for early condition management and consequently improve the number of years lived (lifespan) as well as quality of life through those years (healthspan). In the case of a 40-year-old with an underlying disease risk, individuals who are able to identify their diabetes risk at an early stage and manage their condition effectively, can increase their health span by an additional 8 years, and add 5 years to their lifespan. Similar improvements have been modelled for those living with underlying hypertension risk. The impact of early identification of various cancers suggests that a 40-year-old with an early-stage diagnosis of breast cancer is expected to survive 22 years longer than someone with a late-stage diagnosis.

03

Investing in screening and prevention also yields long-term financial returns and is crucial to the future sustainability and affordability of Discovery Health Medical Scheme. It is estimated that every R1 invested in screening and prevention has the potential for a nine-fold future return through lower long-term healthcare costs.

Based on the modelled impact of Discovery Health Medical Scheme's Disease Prevention Programme, members who are identified as at-risk for diabetes and subsequently engage in appropriate condition management have the potential to reduce their healthcare costs by R875 per life per month. Similar savings have been assumed when considering other chronic conditions such as hypertension and hypercholesterolemia. The reduction in their healthcare costs represents the potential of a nine-fold return on the investment in screening and intervention, after accounting for the cost of screening to identify those at risk, the cost of the interventions to reduce their risk, and the expected increase in their lifespan¹.

¹ Under the theoretical assumption that all members manage their health risk and avoid the subsequent deterioration of their health risk.

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Member engagement in screening and prevention is limited by various hurdles including awareness, funding, access and lack of incentives.

Various inherent biases impact engagement in screening and prevention for individuals:

- A health-wellness paradox causes individuals to place greater value on immediate benefits offered through healthcare, where prices can often be hidden or covered through medical scheme membership. Concurrently a lower perceived value is placed on wellness, where benefits manifest over a longer duration, but costs are incurred upfront, limiting the extent to which individuals recognise the importance of screening
- Members also typically display an overoptimism bias towards their health. Vitality research highlights the extent to which members overestimate their own health status, where 81% of members with at least 5 health risk indicators (such as a high BMI, cholesterol, blood pressure, blood glucose and smoker status) rated themselves in good health or better, when completing a Vitality Health Check.

The hurdles limiting engagement in screening can be overcome by removing funding barriers and offering the right incentives to encourage members to invest in their long-term health through screening.

05

In 2023, the Discovery ecosystem will be geared towards alleviating these hurdles with extensive investment to elevate engagement in screening and risk prevention.

Discovery and Discovery Health Medical Scheme will empower members to better understand their own health status and take any necessary follow-up actions through the introduction of the WELLTH Fund in 2023. This represents an unprecedented investment in the long-term health trajectory of Discovery Health Medical Scheme members, offering an invaluable, once per lifetime benefit for a comprehensive list of screening and prevention interventions.

The Disease Prevention Programme will then take this a step further by providing extensive risk-funded benefits and support for any members who may be at-risk of developing lifestyle diseases such as diabetes and cardiovascular disease.

The incentives for regular screening and healthy living offered by the Vitality programme play a significant part in improving engagement in screening and prevention.

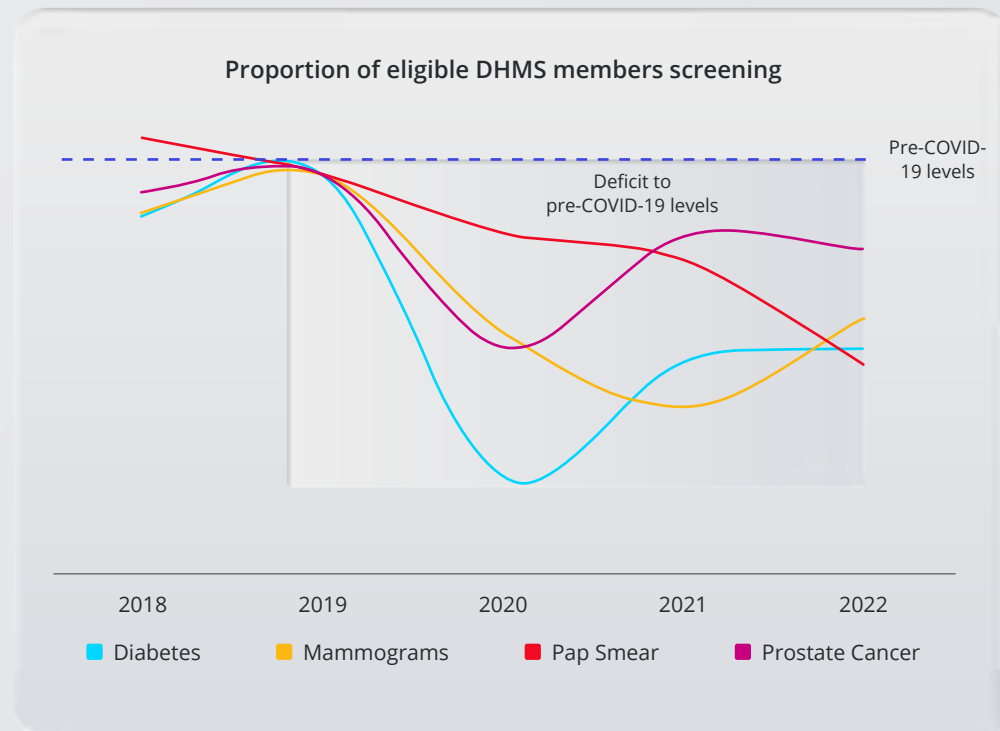
The combination of the funding available through the WELLTH Fund, the disease management programmes offered by Discovery Health Medical Scheme, the general screening encouraged by Vitality, and the benefits and incentives offered on the Vitality programme, creates a comprehensive solution for addressing declining screening rates. It also showcases Discovery's commitment to reversing the health and financial implications of the COVID-19 screening deficit.

01 | Understanding the COVID-19 health screening deficit

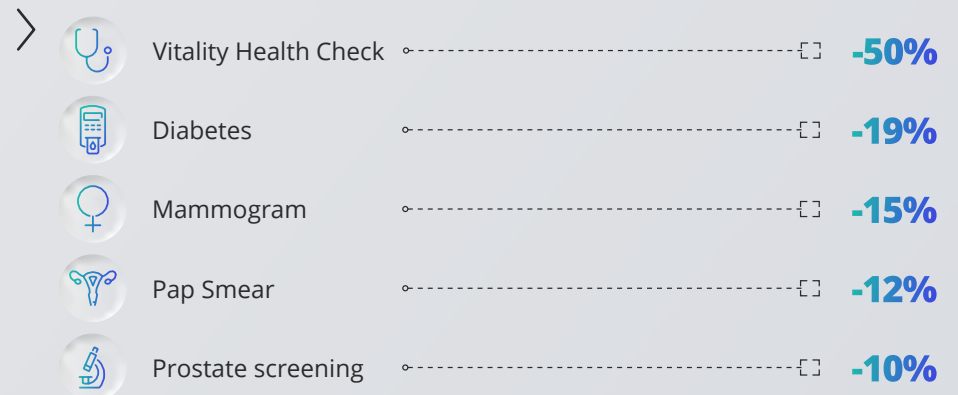
COVID-19 caused a material shift in healthcare utilisation. In 2020 and 2021, COVID-19 infections increased the demand for related healthcare services. Concurrently, members chose to temporarily defer non-essential healthcare for non-COVID-19 related illness to avoid exposure to the virus.

Screening and prevention, while perceived as non-essential, is critical for the early identification and management of various non-communicable diseases. Access to screening and preventative care was limited over the initial COVID-19 lockdown period and decreased demand for these services continued well into 2020 and 2021.

THE COVID-19 SCREENING DEFICIT:



Discovery Health experience shows that healthcare claims for screening and prevention have substantially declined since the start of the COVID-19 pandemic, creating a screening deficit. The number of members completing general screening, offered by the Vitality Health Check, in addition to condition specific screening for diabetes, breast cancer, cervical cancer and prostate cancer, have all declined significantly over the pandemic period and remain depressed in 2022. Essential screening for these conditions dropped by 21% on average, ranging from a 10% decline in prostate cancer screening to a 50% decline on general screening, relative to pre-COVID-19 levels.



The screening deficit has since reduced in 2022, but still remains lower than pre-COVID-19 levels.

02 | Assessing the direct impact of the COVID-19 screening deficit

Regular screening for the early detection and management of conditions such as cancer and lifestyle diseases can have a significant impact on a person's life expectancy (lifespan) and their years spent in good health (healthspan). The health screening deficit which has materialised over the pandemic years can have a substantial impact on long-term health outcomes if it is not addressed. These deficits can result in key lifestyle diseases and health risks going unidentified, where treatment and management could have materially improved the member's lifespan and healthspan.



CANCER



DIABETES



HYPERTENSION

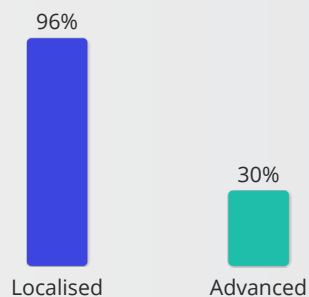


MENTAL HEALTH

The ability to identify cancers at an early stage ensures the best chance of successful treatmentⁱ. Detection of cancer at a less severe stage through screening can have a significant impact on expected survival and life expectancy. The graphs below show the five-year survival rate for early stage and advanced stage cancersⁱⁱ. It also highlights the improvement in lifespan² for a 40-year old with an early stage diagnosis of cancerⁱⁱⁱ.

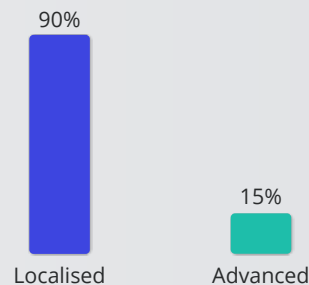
For example, a person diagnosed with early stage breast cancer has a 3 times higher likelihood of surviving 5 years post-diagnosis. A 40-year old is expected to increase their lifespan by on average, an additional 22 years when diagnosed with an early stage breast cancer as opposed to an advanced stage diagnosis.

Five-year survival rate - Breast Cancer



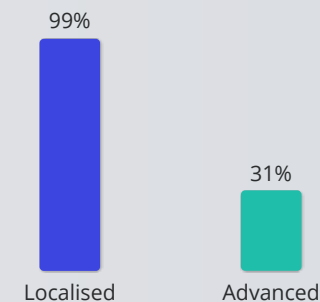
Average life expectancy improvement: 22 years

Five-year survival rate - Colorectal Cancer



Average life expectancy improvement: 22 years

Five-year survival rate - Prostate Cancer



Average life expectancy improvement: 35 years

² Lifespan improvement calculations only considered low and intermediate risk cancers

ⁱ The World Health Organization, Promoting Cancer Early Diagnosis

ⁱⁱ SEER Program

ⁱⁱⁱ Vitality Healthy Futures

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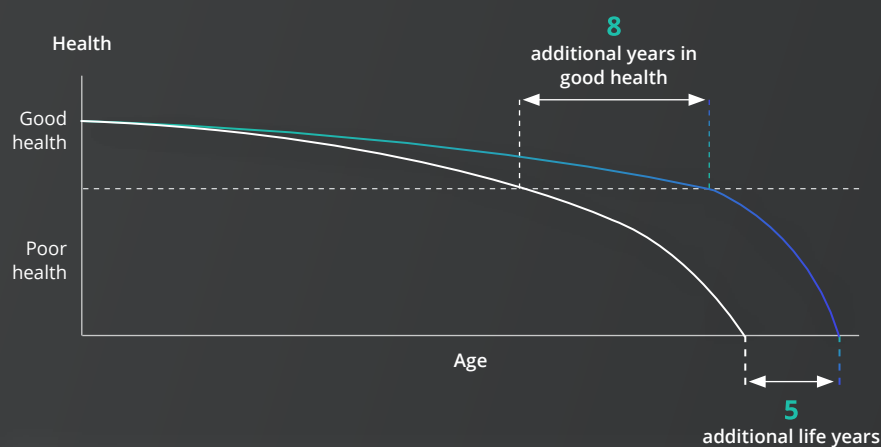
HYPERTENSION



MENTAL HEALTH

Regular screening has significant benefits for the effective management of lifestyle conditions such as diabetes and hypertension.

The graph below shows the change in the healthspan and lifespan of an individual diagnosed with diabetes as they age. Those who are able to identify their diabetes risk at an early stage and manage their illness effectively³, can increase their health span by an additional 8 years and add 5 years to their life span



By identifying diabetes risk early, one can delay or even prevent its onset. In 2023, Discovery Health will implement an advanced AI-based diabetes risk identification model. Members who are at higher risk of developing diabetes, based on their health screening outcomes, will be encouraged to enrol the programme.

Based on an extensive literature review across 18 peer-reviewed papers, the interventions embedded in the Disease Prevention Programme are expected to reduce diabetic registrations by 35%.

³A managed diabetic is one who maintains an in-range fasting glucose, follows a healthy diet and engages in physical activity equal to a MET (Metabolic equivalent of task) of 1500.

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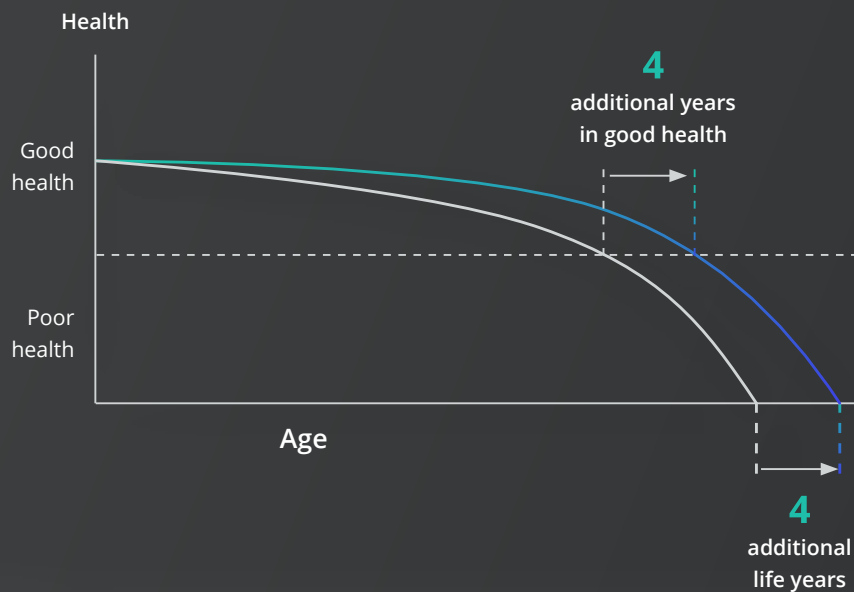
DIABETES



HYPERTENSION



MENTAL HEALTH



Individuals who are able to identify their hypertension risk at an early stage and manage their condition⁴ effectively, can increase their healthspan by an additional 4 years, and add 4 years to their lifespan.

⁴A managed hypertensive is one who adheres to their blood pressure medication, follows a healthy diet and engages in physical activity equal to a MET (Metabolic equivalent of task) of 1500.

02 | Assessing the direct impact of the COVID-19 screening deficit

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CANCER



DIABETES



HYPERTENSION



MENTAL HEALTH

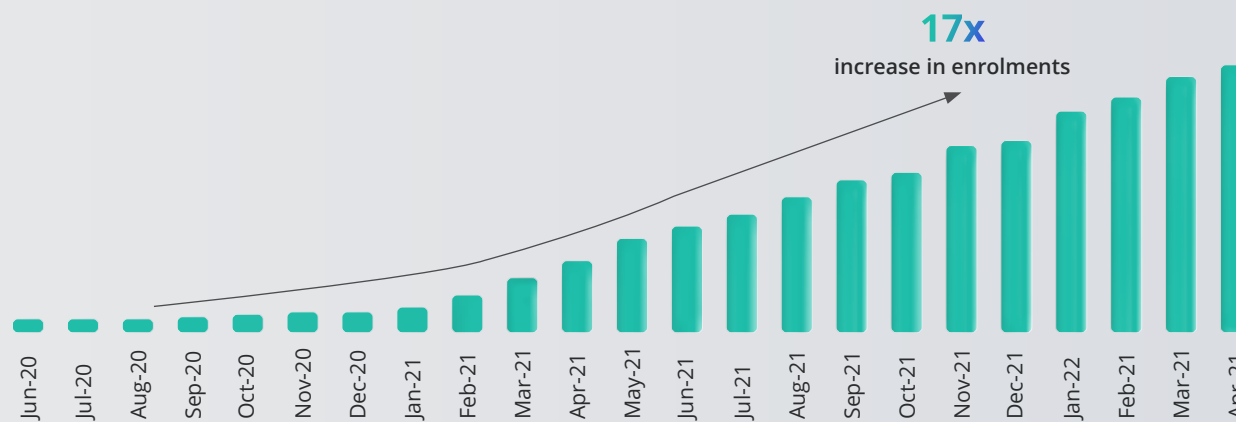
Regular mental health screening improves the outcomes for individuals at risk of developing a mental illness through early intervention, and the effective management of individuals living with a mental illness.

POTENTIAL BENEFITS OF MENTAL HEALTH SCREENING OBSERVED ON DISCOVERY HEALTH MEDICAL SCHEME

The outcomes of the Mental Health Programme offered by Discovery Health Medical Scheme demonstrate the benefit of regular mental health screening. The programme offers a short online screening test, generating a PHQ-9 mental health score for the member. Based on this score, some members are enrolled onto the Mental Health Programme following confirmation of their mental health risk by a psychologist or GP. This process has led to a 17-fold increase in the number of enrolments in the programme since June 2020.

The 6-month post-enrolment results indicate a 6.7% reduction in mental health-related costs for enrolled members. While these are emerging outcomes and potentially confounded by COVID-19 utilisation shifts, they present an encouraging link between programme enrollment and improved mental health outcomes.

Mental Health Programme Enrolments since enhancements



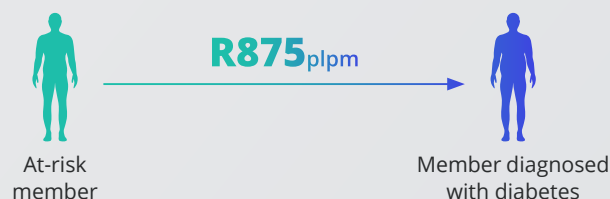
03 | Investment in screening and prevention yields long-term financial returns

The high prevalence and management cost of non-communicable diseases place a major financial burden on the healthcare system. Diabetes and cardiovascular disease, for example, account for as much as 14% (R7.5bn) of total Discovery Health Medical Scheme expenditure each year. While effective prevention and management programmes for non-communicable diseases have the primary objective of improving the lifespan and healthspan of individuals, they also have a secondary impact of reducing the financial burden of these diseases on the healthcare system. Effective prevention and management of conditions such as diabetes and cardiovascular disease can deliver significant long-term health economic returns.

QUANTIFYING THE LONG-TERM HEALTH ECONOMIC RETURNS OF SCREENING AND DISEASE PREVENTION

Discovery Health conducted a managed care pilot, which involved lifestyle interventions to address and manage risk factors associated with diabetes. The pilot was a success with the learnings culminating in the creation of the Disease Prevention Programme which will be added as a benefit for Discovery Health Medical Scheme members in 2023.

Through this pilot, Discovery Health modeled the financial benefits of diabetes prevention:



There is a healthcare cost differential of R875 per month between members at risk for diabetes compared to newly registered members living with unmanaged type 2 diabetes. This implies that identifying members with elevated risk levels for diabetes and supporting the management of their risk through suitable intervention, reduces healthcare costs by R875 on average per life, per month.

⁵ Estimate assumes that a member who is prevented from developing diabetes as a result of screening and intervention remains at an at-risk status over the course of their lifetime due to long-term management of their risk and consequently, does not develop diabetes.

⁶ Suitable intervention has been defined here as enrolling on the Disease Prevention Programme

The infographic features a teal silhouette of a person standing above the text 'R283,000' in large blue font, with 'savings over an individual's lifetime⁵' in smaller blue font below it.

Extrapolating this further, it is estimated that screening for diabetes and the subsequent intervention to maintain the member at an at-risk status would equate to a healthcare saving of R283,000 over the course of the member's lifespan⁶.

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QUANTIFYING THE LONG-TERM HEALTH ECONOMIC RETURNS OF SCREENING AND DISEASE PREVENTION

Yield on diabetes pre-screening

Based on the previous example and accounting for the cost of general screening offered by the Vitality Health Check (including blood-glucose and cholesterol), it is estimated that for every R1 spent on diabetic screening, the scheme has the potential to save R4 in reduced long-term healthcare costs, provided the screening of at-risk members is followed by appropriate interventions to manage this risk, such as those offered on the Disease Prevention Programme.

R1:R4

Four-fold potential return on once-off diabetes pre-screening

This represents a four-fold return on investment from diabetes related screening and prevention measures, assuming all identified risks are subsequently managed.

Yield on general pre-screening

This shows the financial advantages of effective screening and prevention as a secondary impact beyond the obvious health benefits. While the previous example has been verified for diabetes, there are other lifestyle conditions, such as hypertension and hypercholesterolemia which can be identified through the Vitality Health Check. Over 518 000 members on Discovery Health Medical Scheme are registered for at least one of these conditions.

Assuming similar potential savings are available for managing these risks and preventing further deterioration of these risks into chronic conditions, the potential yield for once-off screening and prevention of lifestyle conditions increases to a nine-fold potential return, assuming these conditions are managed, once identified.

R1:R9





Nine-fold potential return on once-off diabetes, hypertension and hypercholesterolemia screening⁷

⁷Estimate assumes similar levels of success for hypertension and hypercholesterolemia risk management as those estimated for diabetes risk management. The assumption is theoretical and represents the potential value under optimistic enrollment and engagement scenarios.

04 | Hurdles limiting member engagement in screening and prevention measures

Despite the advantages of preventative screening, screening rates remain well below optimal levels with various biases and hurdles impacting member engagement.

Increasing member engagement in screening is a function of four key factors:

-  Providing greater **awareness** around the importance of screening
-  Removing **funding barriers** to reduce the cost of necessary screening
-  Ensuring convenient **access** to regular screening
-  Providing the right **incentives** to encourage and reward regular and appropriate screening

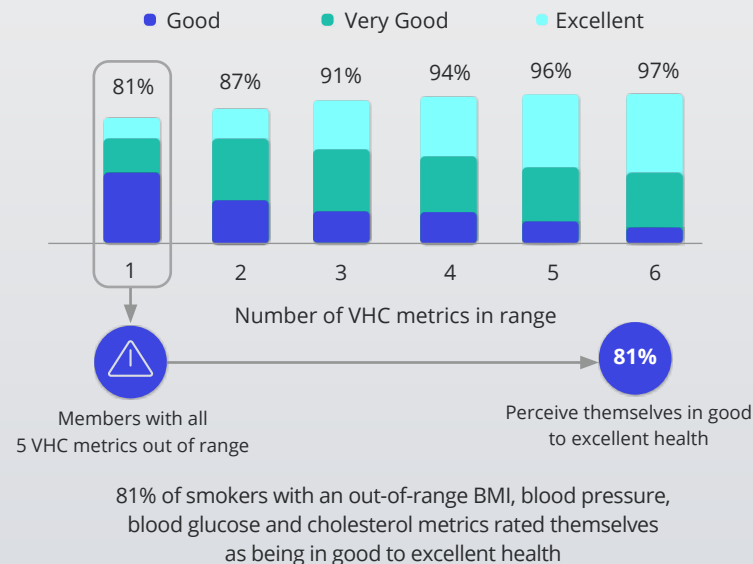
These crucial areas are fundamental to reversing the long-term implications of the screening deficit arising over the last two years.

AWARENESS

There is a natural human tendency to be over-optimistic about one's own health and in turn to be unaware of potential health risks. This results in members underestimating the true value of preventative screening and instead discovering underlying health issues only when they surface, which can reduce both lifespan and health span.

The Vitality Health Check encourages Discovery Vitality members to complete a general screening test annually. Over the last five years, over 600 000 members completed the Vitality Health Check. At each test, members are asked to record their perception of their own health before completing a range of tests, including BMI, cholesterol, blood glucose and blood pressure.

Results from members' responses show that individuals consistently overestimate the state of their health.



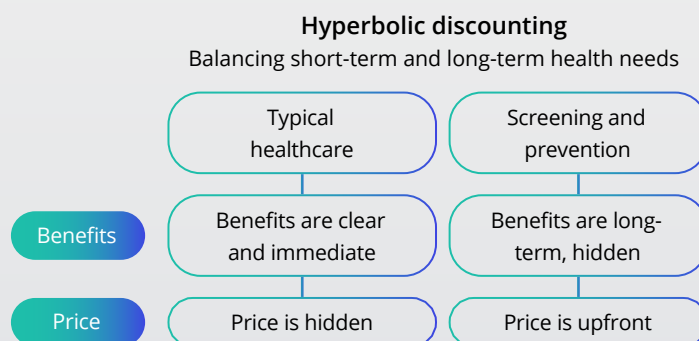
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FUNDING AND ACCESS

A lack of convenience together with the associated financial hurdles are key factors which reduce the appetite for screening.

Hyperbolic discounting is a cognitive bias where greater value is placed on immediate gains, while longer-term rewards, tend to be undervalued.



Since the benefits of screening are hidden, it is often not prioritised appropriately, particularly when compared with more immediate healthcare needs. The impact is that underlying conditions, which could be uncovered early through effective screening, only become evident to the individual when it is too late.

While general screening is covered by the Discovery Health Medical Scheme Screening and Prevention benefit, more specific health checks tailored to the individual come at additional cost to the member – either through day-to-day benefits, their Medical Savings Account (MSA) or as out-of-pocket expenses. Members therefore often avoid screening on the basis of affordability and inconvenience, choosing instead to use their health care funds, or time, elsewhere.

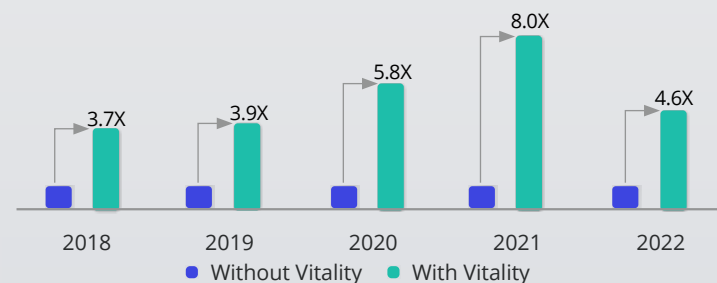
Providing support to overcome this funding hurdle is imperative to driving improved engagement in screening.

INCENTIVES

Introducing incentives can offset the funding and inconvenience hurdles by rewarding members upfront, for certain actions which yield benefits at later life stages.

Vitality creates powerful incentives for members to engage in a healthy lifestyle and develop healthy behaviours. One of these behaviours is regular screening, through an annual Vitality Health Check. Having the correct incentives encourages members to complete the Vitality Health Check and materially improves screening rates, as shown below:

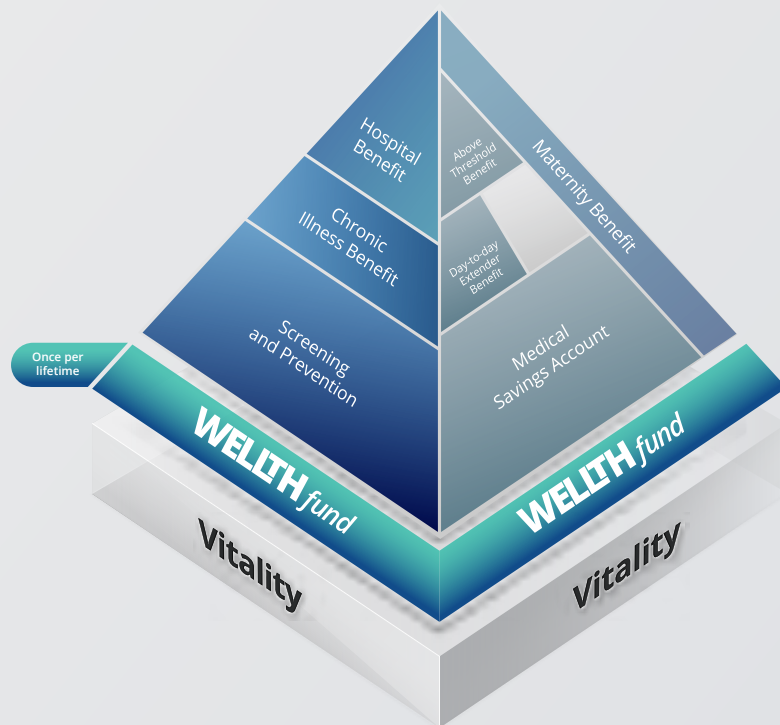
Health Check screening rates for DHMS members



Screening rates of members who are incentivised to screen by Vitality are 4 times higher than for members without the equivalent incentives. Encouragingly, the positive effect of incentives was elevated through the exceptionally challenging COVID-19 years, where screening was less accessible. Screening rates for Vitality members over 2020 and 2021, were 6 and 8 times higher, respectively, than that of Discovery Health Medical Scheme members.

05 | The Discovery Health Medical Scheme **WELLTH** fund

Temporary lower healthcare utilisation over 2020 and 2021 has resulted in record surpluses for medical schemes across the industry, increasing solvency levels beyond the minimum regulatory requirements. Discovery Health Medical Scheme used this excess solvency for contribution increase deferrals in 2020, 2021 and 2022, improving short-term affordability for members. The remaining excess solvency provides the Scheme with a unique opportunity to invest in the long-term health of members on the Scheme by introducing the Discovery Health Medical Scheme WELLTH Fund, to support extensive screening and prevention for all members.



In 2023, Discovery Health Medical Scheme will introduce the WELLTH Fund, which aims to reset health awareness, remove funding hurdles and enable the flexibility for members to access the necessary screening and prevention benefits which are personalised to them.

The WELLTH Fund gives members risk funding of up to R10,000 per policy (R2,500 per adult and R1,250 per child) to use for necessary screening to establish their health status and improve their long-term personal health outcomes.

In addition to this, the Vitality programme boosts engagement in screening and prevention by offering members additional incentives for healthy living behaviours, in the form of valuable lifestyle rewards. All Discovery Health Medical Scheme members have access to Vitality for three months at no additional cost, through the Vitality 3-month special offer.

Discovery's focus and unprecedented investment in wellness is aimed towards reversing the screening deficit which has arisen since the start of COVID-19, and by doing so to make a material long-term improvement in both the health outcomes of members and the sustainability of the Scheme.

Acknowledgements

Deon Kotze | Health Technical Marketing

Yashtil Moodley | Health Technical Marketing

Shannon Rabinowitz | Health Technical Marketing

Lene Viljoen | Health Technical Marketing

Doug Saxby | Health Technical Marketing

Chris Christoforou | Vitality Group Central Product R&D

Louis Lategan | Vitality Group Central Product R&D

Francois Millard | Vitality Group Central Product R&D

Raquel Jardim | Health Marketing Communications

Cecil Daniels | Health Marketing Communications

Kim Cardwell | Strategic Risk Management

Jane Ball | Strategic Risk Management

Nikash Bagirathi | Strategic Risk Management

Brett Rowland | Data Science Lab

Shirley Collie | Risk Intelligence

Claudia Pastellides | Risk Intelligence

Jiren Nayager | Risk Intelligence

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