The Benefits and Challenges of Integrating mHealth With Critical Illness Insurance

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Modern smartphones have given us access to greater computing power than the computers that placed the first two men on the moon in 1969. This growth in digital power at our fingertips has led to the rapid advancement of mobile health applications, commonly abbreviated to mHealth, which allows users to seamlessly manage their health and lifestyle.

mHealth applications have the potential to expand the market for Critical Illness insurance by appealing to a wider range of users and to provide insurers with additional marketing opportunities. The most obvious method could be to encourage existing users to integrate the technology with Critical Illness policies. Such a development could present challenges to the model currently used in the market for Critical Illness.

In the short-term, insurers face the test of finding cost-effective solutions to encourage the use of mHealth applications to monitor, communicate, and integrate with Critical Illness plans. This burden has not fallen entirely on the shoulders of insurers. Developers have taken the first step, with Apple and Stanford University creating the Heart Study App using the Apple Watch to monitor irregular heartbeats and notify users of heart attacks that the user may have had - with cases of lives already being saved.[1]

Over-reliance on mHealth applications to monitor the health and lifestyle of users, or to verify claims, could be problematic for insurers, however. For example, mHealth applications could make a wrong diagnosis, or not be entirely reliable, which could potentially harm users.

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About This Newsletter

Risk Insights is a technical publication produced by Gen Re for life and health insurance executives worldwide. Articles focus on actuarial, underwriting, claims, medical and risk management issues. Products receiving emphasis include life, health, disability income, long term care and critical illness insurance.

How mHealth applications could impact Critical Illness insurance marketing

Telemedicine

Medical App

Online Diagnostics

The use of mHealth applications as part of policy design could help expand the market for Critical Illness by incentivising a customer base to take up policies where these customers would traditionally have no interest in obtaining Critical Illness cover, such as millennials. This development brings the additional benefit of encouraging expansion into a typically healthier segment of policyholders, allowing for a self-selecting pool of lives to be insured, as well as allowing for policies to be created to closely match consumers' needs.

mHealth applications can help to shape the future of Critical Illness insurance distribution, by using the idea of "easy onboarding", which encourages the take-up of Critical Illness through a simpler underwriting and application process. By accessing medical and health-related data via a policyholder's device, the insurer can simplify the underwriting process. Certain health questions can be eliminated and instead be verified by the mHealth applications, being used either as a substitute, or as a complement to traditional disclosures and evidence.

However, much of the success of integrating mHealth applications with underwriting depends on the policyholder's willingness to share his or her their data with insurers, as well as reinsurers, and agreeing what data can be useful to predict risk as a substitute for traditional underwriting disclosures and evidence. A survey found that only 53% of people would trust mHealth applications to help with their finances.[2] Growth in the adoption of mHealth applications could be hindered by a general distrust of insurers, with concerns surrounding the use and storage of personal medical data. On the other hand, mHealth applications could bridge this gap as consumers and insurers will have access to the same data – creating transparency between policyholders and insurers.

The aim from an insurer's point of view would be to create value for the policyholder by improving the financial benefits of cover, coupled with encouraging the policyholder to improve their general well-being.

mHealth applications are built around not needing specialist medical equipment or training to monitor health; they are designed with simplicity being the appealing factor. This is something mHealth-

integrated Critical Illness policies should consider – in essence, they should also reflect the same level of simplicity in product design and avoid unnecessary and unsustainable features.

Insurers should still consider the trade-off between simplicity and reliability. Insurers may not have enough data to develop applications independently, which would reduce reliability or limit the applications they can build. Having less reliable applications could mean that information may not be as accurate as intended, which could lead to reputational damage.

In most cases, the benefits gained from implementing mHealth applications and Critical Illness cover will be measured differently by the policyholder and the insurer. Policyholders could benefit from potentially cheaper premiums, a faster application process and tailored policies; while insurers would see benefits in refined risk pricing and the improved ability to monitor the portfolio over time.

Insurers may also be concerned about policyholders losing interest in using mHealth applications over the term of the policy. Application developers and insurers would need to encourage continued interest in the application over the long term. Insurers could implement "gamification" elements to prolong use, as well as updating and adding new features to keep policyholders interested. This is possible because as technology improves, a wider array of policyholder health indicators could be measured.

Insurers cannot guarantee that mHealth applications will be popular, and so might not be able to justify tying health data to Critical Illness policies over the long-term. Insurers may further be discouraged by the cost of implementing and changing policy design against the benefits gained, particularly if the take-up rate of policies is low.

Insurers could encourage policyholders to take a long-term view on improving health by using targets that are achievable for the policyholder and based on their levels of activity rather than by setting a blanket goal, increasing the attractiveness of the product in the market. An example would be the use of the PAI, a health application which uses data collected by wearable devices to measure the user's heart rate and oxygen take up during

intense exercise. The algorithm provides the user with a score based on the intensity of the user's activity, and how much that activity has increased their heart rate relative to the heart's resting state. The aim of the algorithm is to improve the cardiovascular health of the user, which can reduce the risk of a heart attack.[3] This would have the effect of reducing heart attack Critical Illness claims and encouraging the policyholder to use the application over the longer term, as the algorithm is not limited to a single type of device.

How insurers respond will depend on their own risk appetite. This could range from slowly phasing in policies that complement mHealth applications, to a more cautious approach of only offering mHealth based policies to consumers who have already built up enough medical data – which will also help combat anti-selection.

Collection and analysis of data will allow the insurer to tailor and enhance cover to create value for policyholders. Policyholders who live healthier lifestyles could have access to other life insurance products with minimal or no underwriting. Insurers would see lower lapse rates as policyholders are able to get the most value out of their policies and insure a healthy pool of lives.

Clear policy wording could explain that premiums may increase if the policyholder's lifestyle changes. To avoid concerns of unfairly treating customers, insurers could cap maximum premiums paid by the policyholder – perhaps at the same rate as a standard policy.

The effects of mHealth applications on underwriting

The use of mHealth applications could introduce an element of uncertainty for carriers as technology could develop at a faster rate than underwriting improvements. This risk is increased for the insurer when policies that depend on mobile data are sold with guarantees. Insurers would therefore need to be wary about future proofing their policies.

Given a typical Critical Illness policy could be taken out with an initial term of over a decade, it would be unreasonable to base a long-term policy on current technology. Policies should therefore be designed with changing technology in mind. The

first iPhone was released just 12 years ago, a point at which medical applications had no real online presence or platform. Applications created 12 years ago would be too basic to merit any use with insurance today.

To forecast what digital advancements will occur over the next 20 years and how they might be used to improve a user's health would be largely guesswork. Insurers could future-proof policies by having options to convert them into a standard policy in case developments in clinical diagnosis and treatments continuously outpace the definitions adopted by insurers. This option will also help to reduce policy lapses if policyholders are no longer able to use chosen applications (i.e. due to injury).

As the policy continues through its lifespan, underwriting could be updated as the health and lifestyle of the policyholder changes, allowing healthy policyholders to maintain discounts or benefit from further reduced premiums – a challenge to the traditional pooling pricing model. Insurers and policyholders alike should also consider the reverse scenario, where a worsening lifestyle of the policyholder once covered may lead to more unfavourable premiums than the policyholder would have expected. To treat the customer fairly this should be explained when the policy is taken out. Insurers could take the first step with product design and offer policies with a maximum guaranteed premium or require mHealth data to be input at an earlier stage in the underwriting process to avoid charging potentially higher premiums.

Anti-selection could be a concern if the insurer is not able to underwrite to an adequate standard using the policyholder's accumulated medical data, nor rely entirely on mHealth data to substitute traditional underwriting. In this scenario, policyholders could select against the insurer and seek cover when they experience a deterioration in health and are responsible for inputting their own data. The reliability of mHealth applications here can help to prevent potential anti-selection. Since no single mHealth application will be responsible for monitoring all aspects of the user's health, it's possible that there could be limited scope for such applications to replace traditional underwriting.

Medical Messenger

Online Doctor

mHealth

The impact of mHealth applications on Critical Illness claims

The use of mHealth applications could allow for the detection of illnesses at an earlier stage, or the detection of less serious conditions. Over time policyholders could see a deterioration in their health when tracked using mHealth applications. By notifying the policyholder and prompting them to take corrective measures or seek medical attention at an earlier stage than otherwise, an mHealth application could ultimately prevent medical conditions progressing into serious illnesses.

The "Heart Study App" developed for the Apple Watch has already saved the lives of some of its users.[4]

The potential for mHealth applications to allow the policyholder to self-diagnose conditions is taken a step further with applications such as "GP at hand", where consumers access video consultations with GPs.[5]

As the capability of applications to self-diagnose increases, earlier detection of diseases becomes possible, translating into earlier than expected claims experience. The effect may not be so pronounced since these applications are most often used to diagnose less severe conditions, so would not be classed as a "Critical Illness" or meet the claims definitions of the policy. But insurers should monitor self-diagnostic technology developments as it becomes more capable of measuring complex health metrics.

Insurers who are optimistic about the future of Critical Illness and mHealth but want to combat the risk of misdiagnosis should create and thoroughly vet applications with developers, tailoring applications to work specifically with Critical Illness plans – eliminating unnecessary features of application design. This will depend on the application individually and whether medical health professionals are responsible for diagnosing users if mobile consultations are used, or the algorithms of the application are responsible.

A study into acute care in hospitals in the UK found that 1 in 10 patients are injured or killed because of medical errors or institutional shortcomings.[6]

A lack of physical interaction, with the example of video consultations, may increase the rate of misdiagnosis. Thus, the use of applications without an insurer's approval may see an increase in incidence rates for serious illnesses. As a result, insurers would need to thoroughly vet applications before they can be implemented alongside policy design. Perhaps the best way insurers can avoid this risk is by developing their own applications that they can update, allowing for changes in claim definitions as the market for Critical Illness develops.

Conclusion

The possible product innovations that could be generated from mHealth applications undoubtedly create an opportunity for insurers. Insurers who will naturally gain will be those that are interested in changing product design and finding new markets and are willing to overcome the hurdles of launching policies integrated with adaptable technology.

We know the capability of accessible technology is improving within an industry which is already moving in the right direction, but it will still take time to adopt as attitudes to the use of collected medical data change across demographics. As consumers become more aware of the benefits of sharing data with life insurers, the challenges surrounding the adoption of digitally integrated insurance policies reduces.

The solution would not completely replace medical underwriting but would rather complement traditional underwriting using data collected from applications. A solution that relies solely on the use of mHealth applications as a viable alternative to underwriting is still some distance away.

About the Author

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Endnotes

1   Heart Study App: https://9to5mac.com/2017/12/15/apple-watch-saves-life-managing-heart-attack/

    https://www.apple.com/newsroom/2017/11/apple-heart-study-launches-to-identify-irregular-heart-rhythms/

    http://med.stanford.edu/news/all-news/2019/03/apple-heart-study-demonstrates-ability-of-wearable-technology.html.

2   Consumers trusting insurers with data statistics: https://www.healthinsurancedaily.com/health-insurance/product-area/life-critical-illness/article483244.ece.

3   Personal Activity Intelligence (PAI), Sedentary Behaviour and Cardiovascular Risk Factor Clustering. https://www.paihealth.com/docs/pai-sedentary-behavior-study.pdf.

4   Ibid endnote 1.

5   GP at Hand: https://www.gpathand.nhs.uk/

6   Report on misdiagnosis: https://www.nao.org.uk/report/a-safer-place-for-patients-learning-to-improve-patient-safety/.

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